

THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer • TRANSPORT • The Railway News
The Railway Times • Herapath's Railway Journal • RAILWAY RECORD.
RAILWAYS ILLUSTRATED • ESTABLISHED 1835 • RAILWAY OFFICIAL GAZETTE

PUBLISHED EVERY FRIDAY

AT
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1

Telegraphic Address: "TRAZETTE PARL., LONDON"

Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free:
British Isles and Abroad £2 5s. 0d.
Single Copies One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 63. No. 19

FRIDAY, NOVEMBER 8, 1935

CONTENTS

	PAGE
Editorials	761
Publications Received	767
The Scrap Heap	768
Overseas Railway Affairs	769
£30,000,000 Scheme for Railway Improvements	772
Nigerian Railway Workshops	776
Railway and Road Transport Section	785
Pickfords New Depot at Willow Walk	785
The Commercial Motor Transport Exhibition	788
Railway News Section	795
Personal	795
Notes and News	807
Contracts and Tenders	809
Legal and Official Notices	811
Railway Share Market	812

Golden Jubilee of the C.P.R.

THE completion of any great engineering work is a legitimate subject for rejoicing, and when that work has such far-reaching effect on world transport as has the Canadian Pacific Railway, the fiftieth anniversary of the event provides a suitable opportunity to congratulate the present owners on the possession of a great heritage. The opportune publication of a well-written history of the C.P.R. by Mr. John Murray Gibbon has given a wide public the opportunity of appreciating some of the difficulties—political and physical—which beset the pioneers who desired to see British Columbia linked with Eastern Canada by a transcontinental railway on Canadian soil. This book, which we review on page 767, shows, moreover, that the promoters of the railway were far-seeing men, who visualised their line as a link in a British chain of world communication. When the C.P.R. was formed in 1881 it took over some 713 miles of Government-built line designed to preserve British Columbia as a province in the Dominion. The completion of the transcontinental link was carried through with notable despatch and in about half the contracted period. The last spike was driven at Craigellachie by Mr. Donald A. Smith, afterwards Lord Strathcona, on November 7, 1885, and this is the event of which the Golden Jubilee is now being celebrated. The Canadian Pacific, in addition to its railway and inland water line services, owns and operates 17 hotels, and 41 ocean and coastal steamships. Unlike most North American railways, the C.P.R. operates its own sleeping, dining, and parlour cars, as well as express package, commercial telegraph, and general communica-

tion services. During the past half century the company has built up an enviable record, and from the original transcontinental line there has grown up a travel system extending completely round the globe, such as was foreseen by its founders.

* * * *

Co-ordination and the New Pickfords Depot

The new depot and headquarters for Pickfords Suburban Goods Service, which was formally opened by Sir Josiah Stamp on Monday (as recorded on page 801) provides a good example of the fact that co-ordination between road and rail is being interpreted by the main-line railways on broad lines of respective functions and not, as is freely suggested in certain quarters, as the subordination of one to the other. As Sir Josiah pointed out, the desire of the main-line railways, when they became interested in Pickfords, was to maintain all the great traditions of the business and to add their own strength and experience to its development. Accordingly they have not stinted the introduction of new capital for bringing the whole equipment up-to-date in every way, and to keep Pickfords at the very head of the road transport industry. The modern demand for rapid delivery at frequent intervals, and the growing tendency to reduce the size of consignments, make the flexibility of road transport a peculiarly valuable feature in the conveyance of certain types of load. It may therefore be hailed justly as co-ordination of function when we find the firm of Pickfords, subsequent to its railway affiliation, inaugurating a series of trunk road services originating in Provincial centres and converging daily upon the new Willow Walk depot. These enable overnight delivery to be effected practically throughout the South of England by means of road transport only.

* * * *

The Week's Traffics

The handsome increase in the merchandise earnings of the L.N.E.R. for the past week turns the previous aggregate decrease of the four companies together in this traffic into an increase of £10,000 for the 44 weeks. Coal traffics have again advanced, but the net passenger increase of the four companies together for the week is small, and in consequence the percentage increase in passenger train traffics has gone down from 2.13 to 2.11 and the total aggregate percentage increase has gone up from 0.76 to 0.82. Aggregate traffics of the four companies to date are £127,884,000, an increase of £1,043,000, and the passenger train receipts aggregate £58,414,000, an increase of £1,207,000. In coal the net aggregate decrease has been reduced from £224,500 to £174,000.

	44th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	%
L.M.S.R.	1,000 +	9,000 +	11,000 +	21,000 +	632,000 +	1.24
L.N.E.R.	2,000 +	24,000 +	17,000 +	43,000 +	73,000 +	0.19
G.W.R.	2,000 +	2,000 +	16,000 +	16,000 +	163,000 +	0.76
S.R.	10,000 -	2,500 +	6,500 +	14,000 +	175,000 +	1.01

London Transport receipts for the week were £550,300, an increase of £10,800.

* * * *

Cordoba Central Railway

Although there was an increase of 1.64 per cent. in the gross receipts of the Cordoba Central Railway during the financial year ended June 30, and a decrease of 2.84 per cent. in working expenses, the resulting improvement of £91,988 in net receipts was almost entirely nullified by the increase of £90,609 in exchange differences. Passenger receipts increased by 3.58 per cent. in spite of through omnibus and motorcar competition in rural dis-

tricts, and receipts from goods increased 1.93 per cent. net, the improvement of £41,397, or 9.27 per cent., in general merchandise being particularly satisfactory.

	1934-35	1933-34
Passengers	3,659,099	3,492,427
Passenger receipts	£277,965	£268,352
Goods, tons	1,996,222	2,029,859
Goods, receipts	£1,763,085	£1,729,710
Gross traffic receipts	£2,199,297	£2,163,802
Working expenses	£1,936,030	£1,992,573
Net receipts	£263,267	£171,279

The operating ratio has been reduced from 92.08 per cent. to 88.03 per cent. Payment of interest on the 4½ per cent. first debenture stock has again been postponed until April 1, 1936. There is no development to report in regard to the negotiations for the acquisition by the Argentine Government of the company's railway.

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Overseas Railway Traffics

Amongst Argentine railways during the past fortnight the best traffic returns are those of the Buenos Ayres & Pacific which has added during that period £37,984 to its former increase. In currency the traffic receipts to date are 22,549,000 pesos, an increase of 1,312,000 pesos, or 6.18 per cent. In the two weeks the Central Argentine has reduced its previous decrease by as much as £36,168. Currency receipts for the 18 weeks are down by 1,213,700 pesos, or 3.25 per cent.

	No. of Week	Weekly Traffic	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
Buenos Ayres & Pacific .. 18th	79,318	+	18,884	1,324,601	+ 92,372
Buenos Ayres Great Southern .. 18th	117,098	+	451	2,148,903	- 25,688
Buenos Ayres Western .. 18th	36,310	-	2,377	700,562	- 30,930
Central Argentine .. 18th	112,347	+	16,371	2,120,731	- 43,461
Canadian Pacific .. 43rd	864,800	-	18,400	21,247,800	+ 517,200
Bombay, Baroda & Central India 30th	238,290	+	750	4,511,625	- 7,275

Canadian Pacific gross earnings show a net advance of £20,600 in the past two weeks, but the aggregate net earnings from January 1 to September 30 were £456,600 behind those for the corresponding 39 weeks of 1934.

* * * *

International Freight Train Timetable Conference

The recently concluded meeting at Bergen of representatives of the operating departments of a large number of Continental railway administrations calls attention to the existence of a formal organisation for determining the timings of freight trains of international importance. Unlike the position in regard to passenger trains, for which regularly convened international conferences have existed since 1889, freight train schedules were not discussed at meetings with any comprehensive representation until several years after the war, and it was only in 1930 that the International Freight Train Timetable Conference was formally constituted. Its main function is the arranging of international freight train connections to meet the needs of the countries in which the participating administrations are situated and to accelerate wagon transits, particularly at frontier stations. The conference meets twice a year, general principles being discussed in the autumn and final details at the spring conference, held usually in April, as the timings have to be agreed for introduction on May 15, when all Continental timetable alterations, both passenger and freight, become effective. The next meeting will take place at Stuttgart. The proceedings of the conference are private but the results are made known through an international freight train timetable compiled on behalf of the conference by the German Reichsbahn and published every spring in the French, German, and Italian languages. The conference appoints a managing administration for its domestic affairs, such as the keeping of minutes and circulation of documents; the present holder of this position is the Czechoslovak State Railways.

Christmas Possibilities and Problems

Preparations for the winter, with Christmas traffic as the central feature of the campaign, are the theme of the L.M.S.R. journals *Quota News* and *On Time* this month. In *Quota News* the Commercial Department reminds its representatives of the change which has recently come to pass in the country's manner of celebrating Christmas. Instead of the senior elements of the population staying at home to receive the seasonable felicitations of visiting offspring, there is now a growing tendency towards a general movement to hotels and resorts, where the older generations acquit themselves no less creditably in the divers arts of commercialised merrymaking than do their juniors. This habit is welcomed by those who sell travel, whether to persons or parcels. The Operating Department, in *On Time*, sounds a less convivial but equally necessary note by directing attention to the effects of weather on train working. The major climatic calamities have to be endured, but small, though cumulative, delays can be prevented by anticipatory attention to sanding gear, the fluidity of lubricating oil, the supply of fog signals, and the avoidance of frozen water pipes.

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The Outlook in Argentina

A somewhat less pessimistic view of the outlook for British railways in Argentina was expressed by Sir Follett Holt in replying to shareholders at the meeting of the Buenos Ayres Western company on Wednesday (see page 804). The tardiness of legislative action towards regulating competition from roads and State railways has been a frequent source of complaint, but Sir Follett Holt explained that this is not wholly to be taken as an evidence of bad will towards this country on the part of Argentina. There were many men in high positions in that country who were deeply concerned with the welfare of the British railways, and remedial measures had been put forward, but unfortunately their supporters had not at present sufficient predominance in Congress to carry them through. The Government, too, had been somewhat hampered by the political situation, but it was hoped that after the election it would settle down with a working majority next year. Both at this and other meetings of British railways in Argentina, shareholders have called for a firm line to be taken in pointing out to the Argentine Government the desirability of maintaining friendly relations with this country. Sir Follett considered, however, that the importance of British trade was now fully recognised by the Argentine authorities, and that companies and shareholders could look forward to much better conditions.

* * * *

Trade Depression and Railway Development

Mr. Roy V. Wright, Managing Editor of our American contemporary, the *Railway Age*, dealt with several important subjects in an address to the Association of American Railroads on trade depression and its effects upon railway development over a long period. Air conditioning of passenger cars, with its attendant heavy expense, was, he said, started at the bottom of the depression, and the first announcement of high-speed streamlined trains came in the summer of 1933, since when a considerable number of these trains have been built and placed in successful operation. There has also followed a speeding up of all passenger train services, and exceptional efforts have been made to attract business by affording better and more comfortable accommodation in the trains, and by making the services more convenient. The striking development of special materials, and improve-

ments in the construction of internal combustion engines, have made it possible to build articulated trains so light that relatively small power plants provide much more horsepower per ton than is available for heavy main line passenger trains. These factors have stimulated the efforts made to win back a fair share of passenger business whilst times were bad. The electrification of metropolitan suburban lines has speeded up local services, and in addition to the high-speed streamlined diesel-electric trains, a variety of combinations of high-speed steam equipment has been evolved.

* * * *

Perishable Traffic by Rail

Appreciation of the benefits of railways is rapidly taking place in the American popular press, which has often been devoted in the past to abuse. This was strikingly illustrated recently in an article in the *Jacksonville Times-Union* of Florida which paid tribute to the important part which the railways play in the transport and distribution of fresh fruits and vegetables in the United States. "The miracle which has been wrought," it says, "is not only in the physical transportation of perishable products, but in their distribution over wide areas at such low costs as to make it possible for everybody to use them. Today nearly every state in the Union enjoys oranges from Florida and California, apples from Washington and Oregon, cantaloupes from California, and bananas from Latin America." In support of this claim it shows that potatoes from Maine are marketed in 29 states, from Idaho in 33 states, from Virginia in 28 states, and from Florida in 25 states. Moreover, of the 66 leading market centres in the United States, 43 receive strawberries from Louisiana, 58 receive peaches from Georgia, 37 receive grapes from Arkansas, 41 receive cantaloupes from Arkansas, 51 receive watermelons from Florida, 59 receive celery from Florida, and 48 receive tomatoes from Mississippi. The article concludes that, "wherever the rail network reaches, these and other products of farm, factory, mine, and shop are available at prices only slightly higher than are paid in the communities in which they are produced."

* * * *

Distinguishing the Block Instruments

In his report on the Welwyn accident, Lt.-Col. Mount referred to the possibility of distinguishing the various block instruments in a signal box by means of colours, "in order to differentiate between them as much as possible," and made the specific suggestion that "the difference in tone of block bells should be accentuated, or that indicator shutters should be fitted, a comparatively simple matter, to show which bell has sounded." It must be admitted that the mere provision of labels cannot be called a striking distinction, and that there is a somewhat dull similarity between the instruments in most signal-boxes. On the P.L.M. in France, where the standard No. 3 type lock-and-block instruments have cast iron cases, distinctive colours of case are used to designate up and down—or up and down halves—fast and slow, &c., striped painting being adopted where special distinction is required, thus materially lessening the chance of a man hastily using the wrong instrument. Drop indicators for bells, as proposed by Colonel Mount, are common in Germany and a few other countries. Such an indicator should show when the bell sounds, and remain until the acknowledgment is sent. Undoubtedly the difference in tone between bells is sometimes not as great as is desirable to avoid the possibility of confusion. The position would also be improved, we feel, by using simpler codes than now obtain. We cannot help thinking that there is

too much ringing and consequent waste of time in many cabins. Simplified codes have been used for years on many suburban sections to the south and east of London, and their use might be extended with advantage.

* * * *

Dismantling Locomotives on the Progressive System

A programme for dismantling 8,537 passenger and freight vehicles and 420 locomotives is being carried out by the Chicago, Milwaukee, St. Paul & Pacific Railway, as part of a scheme which is to be extended over five years on a progressive annual system. The dismantling of locomotives and tenders is performed independently of the work on freight and rolling stock, and is undertaken entirely in the open. The locomotives are dismantled on one track whilst the cranes work on a parallel one, and the scrap is loaded into cars on a third track alongside the others. Locomotives awaiting dismantling are stored in the vicinity, and usually two engines undergo the process simultaneously, during which time they are moved progressively from one end of the track to the other. In the first position, piping, fittings and the smokebox are removed, and the cab lifted from the firebox and destroyed by autogenous burning and cutting on adjacent property. The locomotives are then brought to the second position, where further operations are carried out, and the boiler barrel is reduced to four pieces by means of two cuts around the boiler shell and other cuts in a lengthwise direction. In the third position, the frame and running gear are reduced to scrap by means of oxyacetylene cutters, and loaded into scrap cars, the cylinders being completely dismantled in this operation. The engine, or what is left of it, is then moved to a position further on for dismantling the wheels, leaf springs and other components subject to repair or further inspection. The tenders receive similar treatment in a nearby position. Locomotives are being disposed of at present at the rate of seven or eight a week; a gang of twelve workmen, working as one shift, is employed on the work.

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A Russian 4-14-4 Type Locomotive

As long ago as 1931, those responsible for locomotive power on the Russian railways considered building a fourteen-coupled locomotive, and a preliminary design for a two-cylinder 2-14-4 type was worked out. The locomotive was not built, however, and as our readers will remember, a very powerful 4-8-2 + 2-8-4 Garratt was ordered in this country, and placed in service in 1933. Since then, however, the original project has been revived, and an order for a trial 4-14-4 type engine was given some time back to the Lugansk Locomotive Works. This engine is now completed and has been making trial runs. A speed of 25 m.p.h. was obtained on one of these runs with a train of 1,400 tons on a heavily graded incline. During this test the locomotive developed 3,000 h.p. and passed over a curve of 820 ft. radius at a speed of 28 m.p.h. The locomotive in working order weighs approximately 205 tons, of which 138 tons are available for adhesion. The weight of the tender loaded is 123 tons, giving a total of 328 tons for the engine and tender combined and ready for the road. The coupled wheels are 5 ft. 3 in. in diameter, and cylinders measuring 29½ in. diameter with a stroke of 31½ in. are provided. The boiler carries a steam pressure of 242 lb. per sq. in., and the rated tractive force at 85 per cent. of the boiler pressure is 88,250 lb. The tender is mounted on two six-wheeled bogies and carries 11,620 U.S. gallons of water and 24.2 tons of coal. The total heating surface, evaporative and superheating, is 6,695.6 sq. ft. and the grate area amounts to 129.2 sq. ft.

The £30,000,000 Railway Scheme

ALTHOUGH details were not available until the Treasury statement was issued on Tuesday morning, it has been known for some time that negotiations were in progress between the Government and the four main-line railway companies with a view to the preparation of schemes which would enable the companies to put in hand extensive programmes of electrification, reconstruction, and improvement. As long ago as July 7 last, when we gave details of the £35,000,000 scheme of London suburban railway electrification and tube extension, we recorded in an editorial note that Sir Robert Horne, Chairman of the Great Western Railway, had expressed his faith in Government support for railway improvement works, when speaking at Plymouth in January last. We then expressed our hope that the London scheme might be only Stage I of a series of important works, not only in London, but in other parts of the country, financed on similar lines. The Treasury statement on Tuesday morning provides Stage II of such works, and amply justifies our hope, but it would be at once rash and pessimistic to assume that even now the last word had been said. For example, a noticeable feature of the new plans is that no electrification in Scotland is proposed. We have already recorded in our news columns that careful investigation into the traffic possibilities of certain Glasgow suburban lines has been made, and, even if the present time is not considered the right moment to initiate any electrification works on Clydeside, doubtless the matter will not be dropped. This is but one of the many directions in which we expect attention may be given in the preparation of a hoped-for Stage III.

Foremost from the public point of view in the present scheme of works is the increase of mileage which will be worked by electric traction. Naturally the Southern Railway heads the list in this direction by reason of its existing extensive electrified system. Broadly speaking, the sections now to be converted are divided into two main areas, respectively east and west of the existing electric lines. Those to the west comprise routes to Portsmouth, through Woking and Guildford, via the old L.S.W.R. Direct line; extension of electric traction along the old L.B.S.C.R. section lines from West Worthing to Havant and Portsmouth; and also the intermediate line from Dorking through Horsham to Arundel Junction, where connection is made with the coast line to Portsmouth just mentioned. In the east, main-line electrification is concerned chiefly with the old S.E.R. route from Sevenoaks to Hastings via Tunbridge Wells, and other lines included are to Chatham and Gillingham via both S.E.R. (Strood), and L.C.D.R. (Swanley Junction) routes, with, in addition, the Strood-Maidstone section of the old S.E.R. On the L.N.E.R., electrification will be carried out between Manchester and Sheffield via the old G.C.R. main line through Penistone. The L.M.S.R. proposes to convert those lines in the Wirral Peninsula which it took over on grouping from the Wirral Railway. Physical connection is provided by the Mersey Railway under the river to Liverpool and it is proposed to establish through electric passenger services between Liverpool and New Brighton and Liverpool and West Kirby. The G.W.R. has no electrification schemes in this programme.

Signalling and other safety precautions form a prominent feature of the proposed new works. On the G.W.R. it takes the form of extension of automatic train control and track circuiting, and provision of improved signalling, telegraph, and telephone arrangements. The L.M.S.R. intends to instal colour-light signalling between Euston and Willesden Junction, and at Birmingham, Crewe,

Preston, Rugby, Stafford, Warrington, and Wigan. The old L.N.W.R. main line is also to be provided at three points between Crewe and Euston with intermediate block sections, while an extension of track circuiting and other signalling work is envisaged. Colour-light signalling is to be extended on the L.N.E.R. between York and Darlington, and installed between Grantham and Barkston, between Berwick and Prestonpans, and at Newcastle, Edinburgh (East), and Cowlares. It is also announced that automatic train control is to be introduced on the L.N.E.R., and track circuiting extended. New lines are proposed by only two of the four main-line railways. The G.W.R. is to build a line from a point near St. Germans to Looe, and also a new line inland from Dawlish Warren to Newton Abbot. The Southern Railway proposes to bring within the scope of the scheme a portion of its proposed new railway between Motspur Park and Leatherhead, the building of which we announced in our issue of February 22 last. In addition to the works already detailed, many other important, if less spectacular, undertakings are included in the scheme, of which we publish details on pages 772-775. The financial arrangements closely resemble those made in connection with the recent London scheme which received Parliamentary sanction this summer. The essence of the agreement is that the Exchequer will guarantee the principal and interest of a loan, and thus enable the requisite finance to be obtained at a more moderate rate of interest than would be possible at the present time if the railways were to seek an ordinary commercial loan. Naturally it has been arranged that as far as practicable all materials required are to be of United Kingdom origin, with preference given, *ceteris paribus*, to the distressed areas.

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London Transport Reports

THIS week have been published the full reports and accounts of the London Passenger Transport Board for its first two years ending June 30, 1934, and 1935, respectively. Besides giving details of capital expenditure, receipts, and costs, undertakings acquired, passenger statistics and so on, the two reports, which appear in handsome orange-red covers, are of enduring interest historically. Each report contains a map showing in different colours the board's Special Area and the board's area outside the Special Area, and other necessary particulars. The first report clearly explains the constitution and general duties of the board, and the scope of its operations, and both reports deal with constituent undertakings, the pooling scheme with the main line railways, &c., besides including photographic illustrations of stations, works, buses, trolley buses, staff training, and other activities. In the second report are included four maps—railway, bus, coach, and tram, and a full description of the great £35,000,000 electrification scheme within the London Transport Area which has been arranged with the Treasury and two of the main line railways. The scheme of works includes the building of about 12 miles of new tube railways, the electrification of approximately 44 miles of suburban railways, the doubling and electrification of approximately another 12½ miles of suburban railways, and the substitution of trolley buses for trams on approximately 148 route miles. The L.N.E.R. will electrify its main line from Liverpool Street to Shenfield together with the Loughton and Grange Hill branch lines. A tube railway will be constructed by the board in continuation of the Central London line from Liverpool Street eastwards. It will come to the surface at Stratford to provide a platform interchange with the L.N.E.R. Shen-

field service, will continue again in tube to Leyton to form a junction with the Loughton line, and will proceed in an easterly direction via North Ilford to a point near Newbury Park, where it will again come to the surface to form a junction with the Grange Hill loop line. This will permit of the through running of trains from both the Loughton and the Grange Hill lines to the West End of London and beyond over the Central London line.

Another part of the scheme is the electrification by the L.N.E.R. of its Edgware, High Barnet, and Alexandra Palace lines, as well as the doubling of the Edgware line. The board will extend its Highgate tube to form a physical junction with these electrified lines at East Finchley; and its Northern City tube, which now terminates at Finsbury Park, will be extended to form a physical junction with the electrified suburban lines immediately to the north. Through services of trains will be operated from all branches to the City, and from the Edgware and High Barnet lines to the west central area. An interchange station will be provided at Highgate for passengers transferring from the Alexandra Palace line to the west central services. A third part of the scheme is that the Great Western Railway will construct and electrify two additional surface tracks alongside its line from North Acton to Ruislip. The Central London trains, which now terminate in part at Wood Lane, will be projected over this line to Ruislip, thereby providing direct through services to and from the central area and the City. Then there is the board's scheme, already sanctioned by Parliament, for a tube railway from Finchley Road to connect with the Bakerloo line. Bills to obtain Parliamentary powers for many of the other works included in the programme will be promoted in the forthcoming session by the board and the two railway companies concerned.

It is easily understandable why the accounts for the board's first financial year could not be presented within the original statutory period. In the first place there was the unavoidable delay in the completion of the pooling scheme with the main line railways, and secondly the amount of London Transport stock to be issued and the cash to be paid as consideration for the transfer of certain undertakings to the board had still to be determined at June 30, 1934. The board, accordingly, applied for and obtained Parliamentary sanction to postpone the publication of the full accounts, and to make interim payments to the holders of Transport C stock on the best estimates available. In the result these holders have received 3½ per cent. for the year 1933-34, and 4 per cent. for the year 1934-35. The magnitude of the board's operations is shown by the accompanying table which gives the passenger receipts and journeys for the two years of all parties to the pooling scheme.

	1934-35	1933-34
Passenger receipts originating on—	£	£
Railways (L.P.T.B., G.W.R., L.M.S.R., L.N.E.R., S.R., and Joint Lines)	17,847,495	16,980,180
Buses and coaches (L.P.T.B.)	15,774,053	14,634,592
Trams (L.P.T.B.)	5,932,838	5,895,920
Trolleybuses (L.P.T.B.)	163,801	157,873
Total	39,718,187	37,668,565
Average receipt per passenger journey	2.308d.	2.305d.
Passenger journeys originating on L.P.T.B. system—		
Railways	445,888,289	415,881,626
Buses and coaches	2,094,764,436	1,950,467,346
Trams	1,013,433,692	1,002,411,709
Trolleybuses	28,262,013	27,239,437
Total	3,582,348,430	3,396,000,118
Originating on G.W.R., L.M.S.R., L.N.E.R., S.R., and Joint Lines		
Grand Totals	4,129,440,702	3,921,896,596

The board's share of these receipts, after operation of the pooling scheme, amounted to £28,823,262 in 1934-35, against £27,151,277 in 1933-34. To these sums have to be added goods and miscellaneous traffic receipts, and the general financial results of the board's operations are shown in the following table:—

	1934-35	1933-34
Capital expenditure	113,152,136	111,575,969
Total traffic receipts	29,016,085	27,379,351
Working expenses	22,515,889	21,583,744
Provision for renewal	2,526,000	2,020,500
Net traffic receipts	3,974,196	3,775,107
Other receipts	1,500,014	1,520,408
Miscellaneous charges	347,939	338,824
Net revenue	5,126,271	4,956,691
Interest on London Transport stocks other than C	4,076,675	4,073,231
C stock interest	1,015,192	874,664
Other appropriations	34,404	net 8,796

The operating ratio for 1934-35 is 78 per cent., as against 79 per cent. for the previous year. It must be noted, however, that the figures for the two years are not strictly comparable owing to the fact that undertakings have been acquired at varying dates.

In the accompanying table are shown the original standard, and the revised standard, proportions of the pool which have been settled by the Standing Joint Committee of the board and the main line railways:—

	Original standard proportions Per cent.	Revised standard proportions Per cent.
L.P.T.B.	62.00473	62.10364
G.W.R.	1.33541	1.33194
L.M.S.R.	5.09340	5.08014
L.N.E.R.	6.01488	5.99922
S.R.	25.55158	25.48506
Total main line railways	37.99527	37.89636

The revision was due to savings realised in the board's road mileage, and to changes in its working expenses consequent upon standardisation of wages and other costs of acquired road undertakings.

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Air Transport Problems in Great Britain

WHILE Railway Air Services Limited and other pioneer operators have done much to assist in establishing internal airways in Great Britain, it is well to realise the present limitations of such enterprise and to appreciate its purpose. The policy which prompted the formation of Railway Air Services, for instance, was clearly that of anticipation of future competition which might arise out of the rapid development of air transport. No immediate return on capital was expected. The lesson of the roads had been learnt. Such, however, cannot be said of many of the now numerous independent operators, small and large, for whom profits are essential. In the course of his inaugural Brancker Memorial Lecture delivered before the Institute of Transport on Wednesday of last week, Lt.-Col. Shelmerdine, Director-General of Civil Aviation, dealt particularly with this aspect of air transport development. He stated the situation quite openly in saying that "on the face of it, it may look as if satisfactory progress has been made and that internal air transport is establishing itself on a satisfactory basis, but I am afraid that that is not a true picture, for on all sides one hears that, with very few exceptions indeed, the internal air lines are losing money."

The chief trouble in a small country such as this seems to be that the planes cannot be kept long enough in the air. "At the present moment," says Col. Shelmerdine, "the aircraft on our internal services spend something like 90 per cent. of their time on the ground, . . . and it has been estimated that a 14-seater aircraft standing

idle is costing its operator ten shillings an hour." Up-keep charges are high enough even if the plane is being employed, for "the work of maintaining a modern four-engined air liner flying 1,000 hours a year is equivalent to the work of one engineer working day and night seven days a week for a year. This is eight times as much as is needed for a double-decker omnibus working the same hours." Moreover, the average fare on our internal air lines, which works out at about 4d. a mile, is cheaper by 1½d. a mile than that charged on the Imperial Airways Paris route.

This leads Col. Shelmerdine to ask whether although "the speed may be cheap enough, is it fast enough?" He provides his own reply in the words "unfortunately it is not." Taking a typical 100-mile air journey, where the airport is 20 min. away from the town at each end, he finds that "you achieve 37 min. fast flying and you dawdle for 1 hr. 5 min." Thus the average speed between the two town centres is 58·8 m.p.h. The speed will, of course, increase, with a greater length of air journey. Over 400 miles, for instance, it will be 112 m.p.h. Even so, it must be remembered that savings in journey times are not in direct proportion to increases in speed. For example, over 60 miles at a speed of 20 m.p.h. the journey will take 3 hr., at 30 m.p.h. 2 hr., and at 60 m.p.h. 1 hr. Thus the increase of 10 m.p.h. between 20 and 30 m.p.h. saves one hour in journey time, whereas it is necessary to increase the speed by a further 30 m.p.h. in order to reduce the journey time by a further hour. Col. Shelmerdine suggests, what we have frequently pointed out, that where an internal air service may be expected to have a definite advantage over surface transport is in connecting two land areas separated by a strip of water. This principle, at any rate, seems to have been kept well to the fore by those responsible for the planning of the Railway Air Services routes. (See also review of the internal airways of Great Britain on page 800.)

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The Work of the Traffic Commissioners

THE fourth annual reports of the Traffic Commissioners, covering the twelve months from April 1, 1934, to March 31, 1935, which have just been published in one volume, reveal that the work of co-ordination continues to progress more smoothly than some people prognosticated. In practically all the areas the commissioners report that the process of the absorption of the smaller concerns by the large operators has continued. Even so, the extinction of "the small man," which some feared, has not happened; while the number of operators of public service vehicles declined from 5,936 to 5,723, there were still 2,471 operators with only one vehicle and 1,095 with only two. The aggregate of vehicles owned increased from 45,393 to 45,746; the average seating capacity increased slightly from 32·20 to 32·72; and the yearly mileage per vehicle owned increased from 28,600 to 29,300. The number of passenger journeys increased from 5,424,000,000 to 5,721,800,000 and, although this carried the total passenger receipts to £60,000,000, the average per passenger-journey fell from 2·57d. to 2·52d., despite the fact that the average takings a mile increased from 10·67d. to 10·77d. these figures covering stage, express, excursions and tours, and contract tickets. When studying these statistics it has to be remembered that, while they take in bus services, they do not include the tramways and the steadily growing number of trolleybuses. This matter is again referred to by the Yorkshire Commissioners who state "Events during the past year have tended to confirm our feeling that, in certain areas, local difficulties brought about by uncontrolled competitive operation are

likely to recur owing to the fact that in an area such as that of the West Riding, few, if any, trackless trolley routes can be regarded as self-contained. The same or near-by routes are also served by public service vehicles running between adjacent towns and to and from populous areas some little way outside the routes covered by trackless operation."

In the Northern Area report there is noted as an interesting development, the increase in capacity of single-deck vehicles, some of the four-wheeled type seating 40 and a few six-wheeled type with seats for 44. In other places there is a tendency to use double-deck vehicles in place of the single-deck type. In many of the areas the use of oil engines has notably increased, in the South Wales area, for example, the number of vehicles so fitted, grew during the year under review from 196 to 327. The value of the regulations regarding the examination of vehicles is emphasised by the considerable number that have been suspended from service on account of defects and it is clear that certain operators should give greater attention to testing brakes from time to time. On the whole it would seem, as the Yorkshire Commissioners point out, that operators and their employees are making a greater effort to keep within the law. A suggestion is made by the Metropolitan Commissioner of Police that the separate public service vehicle driver's licence might be abolished in favour of an endorsement on the driving licence issued by the County Council.

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Entre Rios Railways

TRAFFIC results of the Entre Rios Railways for the year ended June 30 last show a distinct improvement, apparent under all the main headings, in comparison with the previous year. Gross receipts in currency increased by 17 per cent. due principally to larger cereal traffic and recovery in the general commercial situation in Argentina. The greater tonnage necessarily involved an increase in working expenses, but this was only 4·7 per cent. in currency, and net receipts in sterling at par of exchange showed an increase of £102,687. Exchange differences, however, increased from £80,395 to £85,038, and the resulting balance on net revenue account is £101,248 against £3,204. The improvement in the company's affairs is not yet sufficient to enable any payment to be made of arrears of debenture interest accrued under the moratorium scheme which expired on July 1 last, and the scheme has been extended for another year certain. The result of the year's operations is a debit balance of £114,891, making a total debit balance to be carried forward of £132,692. Some operating figures are:—

	1934-35	1933-34
Passengers	308,857	260,043
Public goods, tons	785,681	644,598
Ton-km. (goods and livestock) ..	245,776,194	210,718,330
Average haul, km.	263·7	276
Operating ratio, per cent.	80·24	89·63
Passenger receipts	£154,406	£132,630
Public goods receipts	534,466	457,460
Gross receipts	942,692	805,833
Working expenses	756,406	722,235
Net receipts	186,286	83,598

Road competition has been checked to some extent by adjustment of freight rates and the use of railcars and rail lorries. To further the General Manager's efforts in this connection, 11 diesel railcars have been ordered and are now under construction in England. The cuts in salaries and wages introduced in January, 1933, remain unaltered. Under the Presidential award these cuts were to be refunded to the men provided there was a surplus income after meeting all expenses and obligations, &c., but the necessary surplus was not earned by this company.

PUBLICATIONS RECEIVED

Steel of Empire : The Romantic History of the Canadian Pacific, the Northwest Passage of To-day.

By John Murray Gibbon. London : Rich & Cowan Limited, 25, Soho Square, W.1. (Also published in Canada by McClelland & Stewart, and in the U.S.A. by the Bobbs Merrill Company.) 9½ in. × 6½ in. × 1½ in. 423 pp. Fully illustrated. Price 21s. net.—To anyone familiar with the story of the difficulties, political and physical, connected with the inception and construction of the Canadian Pacific Railway it is quite understandable that those engaged in the work should see special significance in the driving of the last spike. This tradition has been preserved, and, now that the fiftieth anniversary of the event has been reached, it is appropriate that a volume should be issued setting out the story of the great C.P.R. enterprise. Few more suitable writers could have been found than the present author, for Mr. Gibbon, in addition to having special qualifications for the task, as Director of the Publicity Department of the C.P.R., was at one time a journalist in London, and has also written novels and books on musical history. The present volume, the work of several years, is fully documented and profusely illustrated, and in fulfilling its main purpose contains so much of other Canadian history that it will probably find a permanent place as one of the outstanding contributions to the published records of that country.

Mr. Gibbon devotes the first two chapters to a detailed, though concise, survey of commerce from the time that Marco Polo first stirred imagination with his tales of golden Cathay, down to the great Chinese mania which struck Europe in the latter half of the eighteenth century. From that point the history of the quest for the North-West Passage begins to take definite shape, and the author has developed it fully with an enormous amount of fascinating detail. The early history of Canadian transcontinental transport by trail and canoe is told in a light, readable style and with chatty incident. We thus are led to see the early proposals for an ocean-to-ocean railway on Canadian soil not merely as a commercial proposition, nor even as only an event—important though it was—in Canadian history and in the relations between the Dominion and the U.S.A. with a "north-west passage" background, it appears from the beginning as a link in a chain of world communication destined to join Great Britain with the Far East by means of a fast chain of British ships and railways. This aspect of the C.P.R. was reflected in Sir John Tenniel's cartoon "The New North-West Passage," in *Punch* of October 15, 1887, when the granting of the Pacific mail subsidy marked official recognition of this route to the Orient. The Russian Czar's sanction of the Trans-Siberian Railway in September, 1885, is credited

with being the spur to the Home Government which expedited this C.P.R. arrangement.

Such views of Imperial policy were but distant visions, however, when a Canadian transcontinental railway was first mooted, and the formation of the Dominion itself was the immediate incentive. Alaska was purchased by the U.S.A. in 1867, and fears were then felt that British Columbia would join the U.S.A. and complete American influence along the whole of the Pacific coast. The offer of transcontinental communication on Canadian soil was made, and a delegation left Victoria, B.C., for Ottawa. On July 7, 1870, an agreement was made, the first clause of which read :—

The Government of the Dominion undertake to secure the commencement simultaneously, within two years from the date of the union, of the construction of a railway, from the Pacific towards the Rocky Mountains, and from such point as may be selected, east of the Rocky Mountains towards the Pacific, to connect the seaboard of British Columbia with the railway system of Canada, and further, to secure the completion of such railway within ten years from the date of such union.

British Columbia entered Confederation on July 20, 1871, and the Dominion Government became pledged to build the railway. At once the construction became a political issue. The first sod on the main line was turned on the left bank of the Kaministiquia River about four miles from its mouth on June 1, 1875, but even then construction was not rapid. Mr. Gibbon takes us carefully and clearly through the maze of political intrigue which was finally settled by the formation in 1881 of the Canadian Pacific Railway Company. It took over 713 miles built by the Government and received also \$25,000,000, a loan of \$29,000,000 (since repaid), and a grant of 25,000,000 acres of land, with certain prior rights against competitive railway construction (relinquished in exchange for a Government guarantee of an issue of \$15,000,000 of 50-year 3½ per cent. bonds), for the completion of a transcontinental route across Canada. Construction was begun in 1881, and completed throughout on May 26, 1887, from Montreal to Vancouver. Actually the last spike when east and west lines met was driven at Craigellachie on November 7, 1885—exactly 50 years ago—by Mr. Donald A. Smith (afterwards Lord Strathcona), and the opening "from ocean to ocean" took place on June 28, 1886.

Mr. Gibbon's story of the projection and building of the railway is based upon exhaustive search through the national archives and has brought forward a wealth of correspondence on the subject between the public men of the time. Criticism and objection to the projected railway are not ignored, and the inclusion of a number of cartoons from the political press of the time lightens and illumines this part of the story. The actual building of the line is told with a wealth of incident and

detail, and Mr. Gibbon's long association with the company has clearly been of great value in this respect. The Mount Stephen régime of organisation, the Van Horne period of construction, and the Shaughnessy era of land settlement and ocean development follow each other as fascinating tales. The succeeding chief executives of the company are presented in a clear and incisive light, and the outlining of their contribution to national development forms an important feature of the book. The volume is lavishly produced. Besides a series of comprehensive maps it has 16 full colour plates and over two hundred other illustrations, from photographs and drawings.

The Chinese Railways : A Historical Survey of the Development of Railway Construction. By Cheng Lu (H. Lui Cheng), formerly Counsellor in the Ministry of Railways. Published by the China United Press, 299, Szechwan Road, Shanghai : Price \$6.00. With map.—The development of Chinese railways is reviewed in this volume from the days of the construction of the first line up to the present rapid extensions. The information includes the public attitude of resistance to the inception of a railway ; recent railway problems ; the future of Chinese railways ; details of the various loans granted in connection with railway construction ; and the existing railway systems of China.

Smiths' Hearths and Blowing Fans.—James Keith & Blackman Co. Ltd., 27, Farringdon Avenue, E.C.4, has issued a new list of Smiths' hearths, portable forges, and small blowing fans. The fans are supplied as separate units, with direct drive from built-in alternating-current and direct-current motors, or attached to the hearths. The complete assemblies include dampers to control the blast, and these can also be fitted to fans purchased separately. One pattern of portable forge is fitted with a geared hand-driven fan for use where current is not available. Belt-driven fans can be supplied with the hearths in cases where the customer already has a convenient source of power.

Air and Gas Compressors.—Representative examples of air and gas compressors manufactured by Peter Brotherhood Limited, Amberley House, Norfolk Street, W.C.2, are illustrated in a new catalogue published by the firm. Among the purposes for which they are suitable are for ammonia compression in refrigerating plants, and to compress the air for fuel injection in marine motor engines. Larger units are supplied for compressing coal gas for motor vehicle propulsion, an economical system now being applied by many municipalities owning both gas works and public transport systems. Stage compression is a feature of the high pressure machinery, so minimising heating and power absorbed. Provision is made for easy access to the valves, and working parts are enclosed and lubricated under pressure.

THE SCRAP HEAP

FOOTPLATE BALL

The L.N.E.R. has decided to call its next batch of new express passenger locomotives by the names of famous football teams, says a news item. But they will still—or so we hope—wait for the whistle.—*Peter Simple in "The Morning Post."*

* * *

A youth seeking gold gave uneasy moments to a C.P.R. section foreman east of Wetaskiwin this week. The boy heard that there was gold in rocks, smashed them against rails to get some riches, and clogged a switch point for two mornings in a row. There were suspicions that someone was trying to wreck a train, but the boy was tracked to his home where he told his story of hunting riches.—*From the "Edmonton Journal," Canada.*

* * *

Sandford Fleming was appointed engineer-in-chief of the Canadian Pacific Railway and organised a general survey on a comprehensive scale, detailing eight hundred men in twenty-one divisions. To co-operate with Moberly he sent Roderick McLennan, a former Intercolonial Railway Engineer, who had a pre-

dilection for his fellow Scots. In the following year Moberly took over one of McLennan's *compradores*, or head packers, bearing the unusual name of MacBrown. This individual came from the State of Maine, but, being an observing New Englander, had come to the conclusion that he would have a better chance of getting a job if he had "Mac" as a prefix to his name, so Brown became MacBrown and got the job.—*From "Steel of Empire," by John Murray Gibbon.*

* * *

The ringing of an old locomotive bell recently called communicants of St. Simon's Protestant Episcopal Church, Brooklyn, to worship for the first time. The 200-pound bell is a relic from the Long Island Railway Company, and was fastened in a specially constructed cradle within the tower of the church building. The Rev. John E. Large, Rector, said plans were being made to secure other bells to harmonise with it.—*From "The Mutual Magazine."*

* * *

"COALES BY RAYLE"

It has been established beyond doubt that railways were first made to ease

the draught of wheeled vehicles when, at the end of the sixteenth century, the art of roadmaking in England had been almost entirely lost. The use of railways in connection with coalmining in the county of Nottinghamshire is clearly described in a letter dated May 1, 1610, preserved among the manuscripts of Wollaton Hall:—

"I beseeche you take order with Sir Thomas that we mai have libertie to bring coales down the rayles by wagen for our cariadges onely, and we will bring them down by raile ourselves, for Strelley cartway is so fowle as few cariadges can pass."

* * *

THE SCRAP HEAP

Just a heap of scraps—
A cutting perhaps,
Or one or two snaps.
Week by week
Some railway freak
Or note antique.
No rubbish here.
Cute tales or queer
From far and near.
Perchance some verse
So long as it's terse
And might be worse.
So this odd scrap
Though lacking "snap"
May fill a gap—

Who Knows?

One Hundred Years Ago

Extracts from the November, 1835, issue of "The Railway Magazine" (afterwards "Herapath's Railway Journal") and the oldest constituent of THE RAILWAY GAZETTE

The London and Greenwich Railway

We yesterday had an opportunity of viewing the progress made during the last few months in the works of this railway; and from all that we could perceive we have little doubt that it will be completed by Easter. About two miles of the railway has been laid down, and nearly another mile of the arches on which the road is made is nearly completed, and the whole line is only three miles and three-quarters in length. . . . Yesterday there was an experimental running of the engines and carriages on a portion of the railway which has been completed between the Grand Surrey Canal and Deptford, extending about a mile. There were two engine carriages which were severally tried, and appeared to be nearly equal in power, and performed their several journeys to and fro in a most satisfactory manner. . . . Each of the carriages was divided into three compartments, and was capable of containing twenty-four passengers, besides eight on the outside. . . . From the trial of yesterday, we have little doubt but that the undertaking will prove most successful, and that the journey to or from Greenwich will be performed by means of the railway in six or seven minutes. The works are constructed in the most substantial manner, and greatest

attention appears to be given to prevent accidents.—*Morning Chronicle, October 16.*

LONDON & CROYDON RAILWAY.—The London & Croydon Railway Company have commenced operations at the London end, by staking out the ground required for the undertaking.

Belgian Railways

In the November, 1835, issue of THE RAILWAY MAGAZINE a lengthy translation was included of a report, dated August 4, 1835, to the Belgian House of Representatives by Monsieur De Theux, Minister of the Interior. He stated that the Law of May 1, 1834, regarding the system of railways, directed that a detailed account of operations should be rendered, and commented "The successful results of the commencement of this enterprise are a sure guarantee of the benefits which this country anticipate through its completion. The section from Brussels to Malines is the first that has been executed; it was therefore subjected to all those disadvantages which are inseparable from works of a novel character, yet notwithstanding this, complete success has attended this first attempt. . . . The completing of a section, four leagues in length, in the short space of twelve months after the promulgation of the law, when the tracing was still

incomplete, is a subject of congratulation." Tables were published showing the day to day totals of passengers and receipts for the period from opening to July 31, 1835. Public traffic began on May 7, 1835, on the Brussels-Malines line. At first three classes of carriage were provided, namely diligences, charrs-a-bancs, waggons. Beginning on June 3, however, an "extra first-class" was provided by the inclusion of berlines.

RAILWAY FROM MALINES TO ANTWERP.—The works upon the railway from Malines to Antwerp, which during some months had been carried on somewhat languidly, have been renewed with greater activity, and it is expected that the whole distance, which will include 19,600 metres (12 miles, 400 yards) of rails, will be finished by the month of March, that is, if the winter permits the operations to be carried on. The bridge over the Nethe, near Duffel, is nearly completed, and those over the Lovain canal, and river Dyle, are in a forward state. The system of undulatory rails, which has been employed upon the first section, having been found to answer, will be continued, although many practiced men are highly in favour of the parallel lines, as affording greater equality of pressure and less elasticity or vibration. One thing is certain, that the motion of the waggons upon the road from Brussels to Malines is extremely unpleasant, and resembles more the motion of a rough carriage over a pavement, than the gliding of machines over a level.

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

ARGENTINA

Proposed Airport for Buenos Aires

The Committee of Communications and Transport of the Chamber of Deputies has reported in favour of the proposal to construct an airport in Buenos Aires at an estimated cost of \$10,000,000 paper, to be defrayed by an issue of national bonds bearing 5 per cent. interest and 1 per cent. amortisation, payable by drawings at par. The Government may augment the amortisation fund if it considers this desirable. It is proposed that a committee consisting of representatives of the Municipality of Buenos Aires, the Ministries of the Interior, Public Works, War and Marine, presided over by one of the two latter, shall within a period of 90 days after the promulgation of the corresponding law, make recommendations to the Government in regard to the following:—

- (a) The site, area and reserve land for the airport.
- (b) The necessary works and installations.
- (c) The general plans and the basis of the call for tenders.
- (d) The boundaries of the proposed airport, and the personnel required.

The necessary land may be expropriated by the Government, which shall also establish the conditions prohibiting the erection within the zone surrounding the airport of any buildings or structures liable to interfere with the departure or landing of aircraft, or for the removal of such buildings as may already exist. All the materials imported for the construction or equipment of the airport shall be admitted free of duty.

The need for an airport at Buenos Aires, which is now the terminal point of four international air lines with a service several times a week, has long been evident. Also the rapid development of the transoceanic and transcontinental air services makes its construction a matter of urgency, in view of the accelerated timings for the trips to and from Europe and the U.S.A., which have been reduced from 15 days to less than a week. The proposed airport will be able to accommodate not only aeroplanes but also airships, and will thus enable the German airliner *Graf Zeppelin* to extend its itinerary to Buenos Aires, if desired, instead of being limited as at present to Rio de Janeiro.

Harvest Prospects

Due to the prolonged drought, which prevented sowing in many districts, the outlook for the forthcoming Argentine harvest is by no means promising, and according to the first official estimate just issued by the Ministry of Agriculture, the grain and linseed sowings show a reduction of 8,096,750

acres, or 23.1 per cent., as compared with the 1934-35 period, the area sown with wheat, linseed and oats being the smallest recorded during the last 10 years. The heaviest fall has been registered in wheat with a reduction of some 4,782,500 acres. The report states that the reduction in area in some of the districts in the north amounts to as much as 40 per cent., while part of the area already sown with wheat and linseed, more particularly in the Province of Entre Rios, may be regarded as virtually lost, although it is anticipated that the Province of Buenos Aires will give better results. The report, which is dated September 20, points out that everything depends upon weather conditions during the succeeding fortnight, as rains are urgently needed over the greater part of the grain belt. The following table shows the estimated area sown and the reduction in acreage as compared with 1934-1935:—

	Area Sown Acres	Reduction as compared with Last Year Acres	Percentage
Wheat	14,250,000	4,782,500	25.1
Linseed	6,200,000	1,997,500	24.4
Oats	2,900,000	670,000	18.8
Barley	1,950,000	87,500	4.3

INDIA

Railway Conference Concluded

The annual session of the Indian Railway Conference Association concluded on October 12, when the President, Mr. J. C. Highet, summarising its work, said that the two outstanding subjects dealt with were connected with the classification of goods and with the use of faked tickets. With regard to the former, Mr. Highet hoped that the procedure recommended by the conference would enable a revised classification to be brought into force in the very near future. The proposals made for the simplification and the removal of anomalies from the goods tariff should ensure a reasonable finality within a much shorter time than at one time seemed likely. Adequate attention would also be given to the setting up of machinery to ensure that accurate rates are promptly available to the public. The use of faked tickets, the President explained, presented difficulties in regard to prevention and detection, and the railways must take all conceivable measures not only to prevent these frauds, but also to make the *modus operandi* of those concerned as difficult as possible. Mr. Highet thought that the uniform application of the measures recommended in the conference resolution should go a long way towards checking this form of fraud.

In conclusion Mr. Highet referred to the encouraging remarks made by the

Chief Commissioner of Railways in regard to the important part played by the Indian Railway Conference Association in the successful and harmonious working of the Indian railways. The Association dealt with practical problems which could be handled only by practical railwaymen. Whatever changes might follow the constitution of the new statutory railway authority, he was of opinion that they could not do without an independent body of the status of the present association. Finally, Mr. Highet drew attention to views expressed by the Member for Railways, particularly those in connection with propaganda relating to goods services and with the need for greater courtesy to third class passengers.

Mr. H. N. Colan, Agent, Madras & Southern Mahratta Railway, was elected President of the Association for 1936-37.

Nizam's State Railway Development

During the year 1934-35 the Nizam's State Railway spent Rs.50,000 on railway surveys. The Bolda-Adilabad-Manikgarh survey was completed, and a report, with project estimates, submitted to the Government. The construction of the first 114 miles from Bolda to Adilabad (to metre gauge standard) at an early date is under consideration. The capital cost for this section is estimated at Rs. 84.5 lakhs. A careful examination of the traffic prospects is said to show that, including additional main line earnings, the new line will yield a return of 7 per cent. on capital outlay as soon as it is opened to traffic.

The Bidar Extension Railway was carried further from Udgir and connected with Parli-Vaijnath, increasing the total mileage of the State's railways from 1,231 to 1,290 (667 miles of broad gauge and 623 miles of metre gauge lines).

A capital sum of Rs. 23.32 lakhs has been provided for open line works during 1935-36, the renewal of, and addition to the rolling stock being mainly responsible for the increase of about Rs. 7 lakhs in the allotment.

Road Transport in Hyderabad

The Nizam's Government, which is responsible for the first organised attempt to link railway and motor transport under the same agency—as described in THE RAILWAY GAZETTE of October 21, 1932—has provided a sum of about Rs. 19 lakhs for the expansion of the road mechanical transport services during the year 1935-36. The experimental road transport service, opened in June, 1932, has now become firmly established in public favour. The results achieved are sufficiently impressive to inspire confidence in a progressive policy of expansion. The percentage of net earnings on capital cost during the year ended March 31, 1935 was as high as 11.67, a remarkably satisfactory figure

reflecting great credit on the enterprising management.

Mysore Railway Workshops Extension

The decision of the Government of Mysore to take over from the Madras and Southern Mahratta Railway the management of the Bangalore-Hindupur and the Yeswantpur-Harihar Railways on January 1, 1938, necessitates elaborate extension of the railway workshops. A scheme for the extension of the central railway workshops at Mysore at a cost of Rs. 12 lakhs has recently been approved by the Government. The work, which will be spread over four years, will be taken in hand immediately. The projected improvements include the extension of the boiler and paint shops and the laying of additional tracks.

LATVIA

State Railways in 1934-35

Traffic on the Latvian State Railways has increased steadily since 1933, and for the fiscal year ended on March 31, 1935, the receipts increased by 9.4 per cent. compared with the figure for 1933-34, to a total of 33,400,000 lats. The working expenditure was 29,500,000 lats, and the working surplus 3,900,000 lats, compared with 1,200,000 lats in the preceding year. The number of passengers carried rose by 11.2 per cent. to 13,700,000, and the total train-km. increased from 8,600,000 to 9,400,000. At the end of the fiscal year the mileage open to traffic was 2,944. New lines are now being built, at an estimated cost of 7,500,000 lats.

SWITZERLAND

Proposed Use of One Simplon Tunnel for Road Traffic

In order to compete with the proposed Mont-Blanc vehicular tunnel, proposals have been made by various local authorities and organisations in Switzerland that the second Simplon single-line tunnel (opened in 1923) should be used for road traffic. It was stated at a recent meeting of the Administrative Board (Conseil d'Administration) of the Swiss Federal Railways that, apart from the technical difficulties of such a scheme, it would involve the agreement of the Swiss and Italian Governments, as the Simplon tunnels were opened under a treaty between these two countries.

Pilatus Railway to be Electrified

Electrification of the Pilatus Railway was decided on at a special meeting of shareholders on October 21. Traffic on this well-known mountain railway has declined very seriously during the last few years, in spite of drastic reductions in fares, and it is expected that electrification will be the means of attracting larger numbers of passengers while in-

creasing the capacity of the line and reducing working expenses. It is stated that an expenditure of approximately Fr. 400,000 would in any case be involved by the replacement of the present rolling stock by more modern vehicles.

The Pilatus Railway was opened on June 1, 1889. It has a maximum gradient of 48 per cent., with an average of 38 per cent. The Locher rack system is used, the centre rail having teeth on each side which are gripped by horizontal gearwheels on the engines. The latter are mounted on the same underframes as the coach bodies, with which they form one vehicle.

CHINA

Ningpo Line Loans

The Ministry of Railways has arranged for loans of \$8,000,000 from the British and Chinese Corporation and a further \$8,000,000 from the China Reconstruction Finance Corporation to complete the construction of the Shanghai-Hangchow-Ningpo Railway. Bonds are to be issued early in 1936. These funds will be used to complete the bridge over the river near Hangchow and so convert the present 100-mile isolated section of line from the far river bank to Ningpo into an extension of the main line from Shanghai. It will also give direct rail connection with the Chekiang-Kiangsi Railway.

Improving Education of Staff

Efforts are being made to improve the general standard of education of those of the Chinese who have not had the advantage of early schooling. This is being facilitated by the adoption of a simplified form of Chinese characters in the written language and instructions have been issued by the Ministry of Railways that those members of the staff who are unable to read and write are to be taught. The new system of training is to begin on the Nanking-Shanghai and the Shanghai-Hangchow-Ningpo Railways. The administrative, clerical, and senior members of the outdoor staff are already able to read and write in both Chinese and English.

Peiping-Hankow Improvements

Now that the Peiping-Hankow Railway is so soon to become a part of the great main trunk route from north to south, from Peiping to Chengchow, Hankow, Wuchang and over the Canton-Hankow construction to Canton, it has been decided generally to rehabilitate it at an immediate estimated cost of \$2,200,000. The permanent way is to be thoroughly overhauled and the bridges at Hsinlo and Fengchuen are to be rebuilt whilst others are to be repaired section by section. The principal work, however, will be the replacement of the present very rickety bridge over the Yellow River, at a cost of \$7,500,000.

Twenty new locomotives are to be

purchased for this line and the equipment of the workshops is to be increased, while an extension to Peiping of the long-distance telephone, additional signalling, crossing loops and sidings at stations will improve traffic working out of all recognition.

Meanwhile, arrangements are being made to instal a train ferry service between Wuchang and Hankow for the operation of through traffic with the Canton-Hankow Railway.

MANCHUKUO

Heavy Expenditure This Year on the S.M.R.

The great sum of Y.200,000,000 is said to have been budgetted by the S.M.R. for expenditure on various enterprises during the current financial year. This sum is divided into (a) Y.47 million for ordinary development; (b) Y.145 million for special measures—including new constructions on behalf of the State and general improvement of the State-owned lines, and (c) Y.8 million for subsidiary investment. The funds are expected to be raised by the issue of debentures and by other means. The Y.120 million for new construction works is subsequently said to have been halved, and a programme of 300 km. of new line a year is now aimed at.

New Sections of Line and Bridges Completed

The following new sections of line have now been opened for public traffic: The last section of the Chinchow-Jehol line into Jehol City; the extension to Solun in Hsingan; and the Mutankiang-Linkow section in Eastern Kirin. Two new railway bridges over the Tumen River—one 1,640 ft. in length near Chingsin and the other 650 ft. long at Shunchieh—were to have been opened in the second half of October.

S.M.R. Dining Car Waitresses to Speak Four Languages

Some little time ago the South Manchuria Railway decided to employ Japanese waitresses on the dining cars of the important express trains. They were required to have a knowledge of Japanese, Chinese, and English, and to be able to serve Japanese, Chinese, and European food. The experiment has apparently been successful, and the S.M.R. has now decided to add to its staff Russian waitresses of high-school education. They will have the advantage of a knowledge of the Russian language in addition to other languages and it will be a convenience to the many nationalities who use the railways. Passengers on these trains are principally Manchukuo, Japanese, Chinese, Korean, Russian, and European. Most of the European passengers have a knowledge of the English language. It is the intention later to add Manchurian and Korean girls to the staff, thus opening up to them new opportunities of employment.

BRITISH RAILWAY STATISTICS

"The Railway Gazette" monthly table of freight and passenger traffic figures for July, 1935, as compared with the corresponding period in 1934, compiled from the Ministry of Transport Statement No. 188

Description	Great Britain*	Great Western	London & North Eastern	London Midland & Scottish	Southern
PASSENGER TRAIN TRAFFIC—					
Number of passenger journeys (excluding season ticket holders)	115,973,914	9,373,789	19,467,334	29,870,539	20,124,529
Increase (+) or decrease (—)	+ 6,653,179	+ 533,627	+ 733,361	+ 1,475,336	+ 855,476
Passenger receipts (excluding season ticket holders)	£6,603,267	£916,423	£1,406,048	£2,351,391	£1,337,186
Increase (+) or decrease (—)	+ £408,494	+ £61,480	+ £78,008	+ £142,126	+ £89,946
Season ticket receipts	£780,965	£49,090	£142,782	£214,847	£251,482
Increase (+) or decrease (—)	+ £5,383	+ £204	+ £2,102	+ £3,414	+ £7,461
Parcels and miscellaneous traffic receipts (excluding parcels post)	£1,138,970	£200,275	£343,610	£422,844	£148,191
Increase (+) or decrease (—)	+ £24,806	+ £6,934	+ £15,966	+ £7,106	+ £120
FREIGHT TRAIN TRAFFIC—					
Freight traffic (tons) (excluding free-hauled)	17,679,682	4,452,221	8,062,430	7,943,993	1,130,162
Increase (+) or decrease (—)	+ 179,862	+ 15,602	+ 184,713	+ 2,656	+ 38,821
Net ton-miles (excluding free-hauled)	1,021,447,521	196,097,015	337,931,480	410,049,561	48,994,826
Increase (+) or decrease (—)	+ 4,418,866	+ 4,368,910	+ 16,457,848	+ 6,610,752	+ 115,742
Average length of haul (miles) (excluding free-hauled)	57.78	44.04	41.91	51.62	43.35
Increase (+) or decrease (—)	+ 0.34	+ 0.83	+ 1.06	+ 0.82	+ 1.34
Freight traffic receipts	£5,763,245	£1,005,500	£1,910,000	£2,316,000	£344,064
Increase (+) or decrease (—)	+ £74,572	+ £2,500	+ £68,000	+ £8,000	+ £14,939
Receipts per ton-mile	1.354d.	1.23d.	1.36d.	1.36d.	1.69d.
Increase (+) or decrease (—)	+ 0.012d.	+ 0.03d.	+ 0.02d.	+ 0.02d.	+ 0.07d.
Freight train-loads—					
Average train-load (tons)	116.64	125.84	119.99	113.93	99.96
Increase (+) or decrease (—)	+ 0.89	+ 0.77	+ 4.06	+ 0.79	+ 0.67
Net ton-miles—					
Per train engine-hour	967.12	1,046.85	997.17	946.54	795.34
Increase (+) or decrease (—)	+ 6.00	+ 2.67	+ 16.46	+ 2.91	+ 10.39
Per shunting-hour	807.49	741.20	861.65	857.26	549.41
Per total engine-hour	440.06	433.95	462.24	449.85	324.94
Net ton-miles per route-mile per working day	2,345	2,400	2,470	2,718	1,089
Increase (+) or decrease (—)	+ 9	+ 49	+ 113	+ 44	+ 6
Wagon-miles, Total	312,811,374	56,711,601	109,092,157	128,787,289	16,284,459
Increase (+) or decrease (—)	+ 1,442,722	+ 1,617,817	+ 1,592,804	+ 1,848,329	+ 281,828
Percentage of loaded to total	66.59	68.29	63.35	68.66	66.59
Wagons per train—					
Total	33.50	33.68	34.29	33.26	31.10
Increase (+) or decrease (—)	+ 0.05	+ 0.18	+ 0.13	+ 0.22	+ 0.47
Loaded	22.31	23.00	21.72	22.84	20.71
Empty	11.19	10.68	12.57	10.42	10.39
Train-miles, Coaching—					
Per train-hour	15.29	14.24	14.58	14.81	17.58
Per engine-hour	12.01	11.19	11.20	11.10	14.16
Train-miles, Freight—					
Per train-hour	9.73	10.06	9.69	9.68	9.65
Per engine-hour	3.77	3.47	3.90	3.94	3.20
Engine miles, Total	48,404,350	7,549,844	13,294,614	17,973,408	6,664,360
Increase (+) or decrease (—)	+ 767,211	+ 238,996	+ 117,322	+ 273,669	+ 118,692
Mileage run by engines, Total train-miles—					
Coaching	26,523,697	3,629,877	6,289,874	8,899,162	5,008,947
Freight	9,337,797	1,684,021	3,181,450	3,871,750	523,638
Engine-hours in traffic, Total	4,872,010	832,056	1,446,172	1,861,989	533,692
Increase (+) or decrease (—)	+ 41,756	+ 20,827	+ 2,395	+ 22,760	+ 991
Shunting miles per 100 train-miles—					
Coaching	7.18	6.69	6.35	7.80	7.91
Freight	72.17	84.62	68.43	65.92	95.61

* All standard gauge railways

Passenger Traffic Statistics: Number of journeys, receipts, and receipts per journey (excluding season ticket holders)—July, 1935

Subject	Great Britain	Great Western	London & North Eastern	London Midland & Scottish	Southern	Cheshire Lines Committee	Liverpool Overhead	London Passenger Transport Board†	Mersey
Full fares—									
Passenger journeys	30,786,395	777,998	1,282,214	1,743,708	3,032,591	21,807	158,139	22,868,891	79,107
Gross receipts	£1,076,911	£108,314	£168,972	£176,177	£283,593	£3,385	£1,647	£315,874	£1,477
Receipts per passenger journey	8.40d.	33.41d.	31.63d.	24.25d.	22.44d.	37.25d.	2.50d.	3.31d.	4.48d.
Reduced fares—									
Excursion and week-end—									
Passenger journeys	52,307,670	5,848,296	13,005,206	19,447,852	9,997,575	509,680	163,506	1,432,274	680,134
Gross receipts	£4,451,475	£660,997	£1,019,697	£1,841,565	£789,161	£42,751	£1,713	£33,663	£11,006
Receipts per passenger journey	20.42d.	27.13d.	18.82d.	22.73d.	18.94d.	20.13d.	2.51d.	5.64d.	3.88d.
Workmen—									
Passenger journeys	25,948,104	1,835,769	3,384,264	6,812,944	5,594,624	241,312	195,212	6,778,424	195,878
Gross receipts	£380,108	£27,266	£55,693	£110,222	£93,040	£4,294	£1,584	£75,194	£1,790
Receipts per passenger journey	3.52d.	3.56d.	3.95d.	3.88d.	3.99d.	4.27d.	1.95d.	2.66d.	2.19d.
Other descriptions—									
Passenger journeys	6,789,183	876,664	1,757,503	1,808,583	1,488,974	106,142	41,610	544,149	20,414
Gross receipts	£531,744	£80,453	£122,727	£151,145	£160,169	£5,469	£322	£5,575	£308
Receipts per passenger journey	18.80d.	22.03d.	16.76d.	20.06d.	25.82d.	12.37d.	1.86d.	2.46d.	3.62d.
Total—									
Passenger journeys	115,973,914	9,373,789	19,467,334	29,870,539	20,124,529	879,617	558,467	31,623,738	975,547
Gross receipts	£6,603,267	£916,423	£1,406,048	£2,351,391	£1,337,186	£56,533	£5,266	£430,306	£14,585
Receipts per passenger journey	13.67d.	3.46d.	17.33d.	18.89d.	15.95d.	15.42d.	2.26d.	3.27d.	3.59d.

† Includes passengers originating on the railway undertakings, and on the Whitechapel and Bow Joint Railway

£30,000,000 SCHEME FOR RAILWAY IMPROVEMENTS

Automatic train control for the L.N.E.R.—1,500-volt main-line electrification between Manchester and Sheffield—More than 400 new steam locomotives—Euston to be rebuilt—New G.W.R. lines in Devon and Cornwall—Wirral electrification and through services to Liverpool—About 250 more route miles of Southern electrification

ON Tuesday morning it was officially announced that, after some months of negotiation, the Government has just concluded an agreement with the four main-line railway companies which, on the grant of the necessary powers by Parliament, will enable the companies to put in hand an extensive programme of reconstruction and improvement at a cost of some £30,000,000. The work will begin as early as is practicable and is expected to be completed within five years.

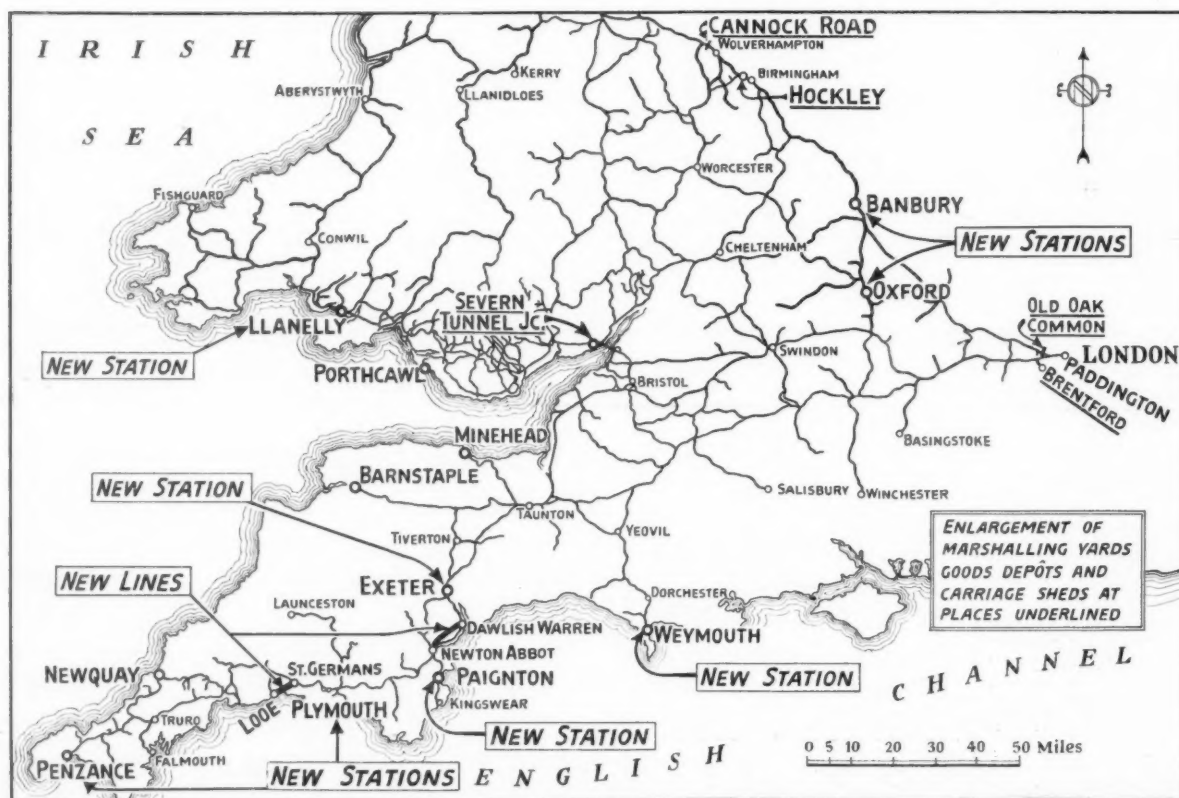
The financial arrangements closely resemble those made in the recent London transport agreement and are subject to the same general conditions. The essence of the agreement is that the Exchequer will guarantee the principal and interest of a loan. As far as practicable, all plant, machinery, and materials required in connection with the works are to be of United Kingdom origin, and all manufactured articles to be wholly manufactured in the United Kingdom, preference being given (other things being equal) to firms in the Special Areas. Contracts are to be subject to the Fair Wages Clause, and where work is carried out by direct labour the wages and other conditions of employment are to be those in force in the company's service on similar work. The additional labour

required for carrying out the schemes is to be selected from suitable workpeople submitted by the employment exchange.

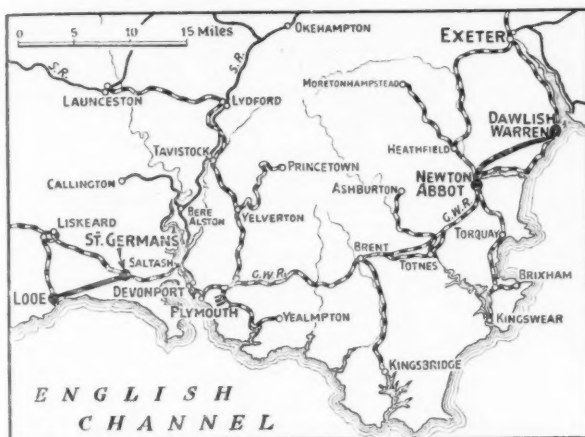
Apart from the construction of improved locomotives and carriages for use over wide areas, the programme comprises important schemes of electrification and the provision of new or improved facilities in various cities and districts in different parts of the country. The outline of the programme is as follows:—

G.W.R.

- 1.—Construction of a new line from near St. Germans to Looe, including the provision of diesel railcars for the local services and other development works in connection with the line.
- 2.—Construction of a new deviation line from Dawlish Warren to Newton Abbot. (This and the preceding new line are shown on the accompanying sketch maps).
- 3.—Doublings of certain sections of line, lengthening of platforms and crossing places, and provision of new loops on the Barnstaple, Minehead, Newquay, and Porthcawl branch lines.
- 4.—Reconstruction and enlargement of important



Sketch map of G.W.R. system showing proposed new lines and points at which marshalling yards, goods depots, and carriage sheds are to be enlarged



Proposed new G.W.R. lines between Dawlish Warren and Newton Abbot, and between St. Germans and Looe

stations, including Banbury, Exeter, Llanely, Oxford, Faignton, Penzance, Plymouth (North Road), and Weymouth, and minor improvements, including the provision of loop lines at a number of other stations throughout the system.

5.—Enlargement of marshalling yards, goods depots, and carriage sheds at Brentford, Cannock Road, Hockley, Old Oak Common, and Severn Tunnel Junction, and minor improvements at other places throughout the system.

6.—Adaptation of certain lines for use by heavier engines.

7.—Alterations of passenger rolling stock.

8.—Extension of automatic train control and track circuiting, and provision of improved signalling, telegraph, and telephone arrangements.

L.N.E.R.

1.—Electrification of the line from Manchester to Sheffield, including provision of rolling stock and other equipment. (This will presumably be on the 1,500-d.c. system as recommended by the Pringle Committee for future electrification in Great Britain. The Weir Committee Report of 1931 was based on the assumption that this system would be standardised.—ED. R.G.)

2.—Improvements to the following lines:—

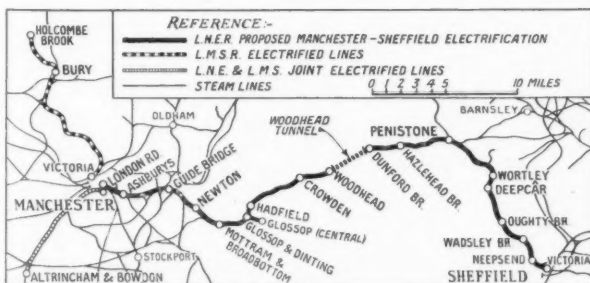
(a) Colchester to Clacton, including doubling between Thorpe-le-Soken and Clacton.

(b) Felixstowe branch, including doubling between Westerfield and Felixstowe Town.

(c) Shenfield junction to Southend.

(d) Ely to Newmarket.

3.—Provision of running loops at ten places between



L.N.E.R. main line between Manchester and Sheffield to be electrified

Grantham and Doncaster (with colour light signalling between Grantham and Barkston) and four places between Edinburgh and Berwick (with colour light signalling between Prestonpans and Berwick).

4.—Provision of additional carriage and storage sidings at Edinburgh, Craigendoran, and Cowlairs, and additional facilities at Bathgate Junction and Broxburn.

5.—Station improvements, including colour light signalling at Doncaster and York and structural improvements at King's Cross.

6.—Construction of 43 new steam locomotives.

7.—Construction of additional passenger carriages and conversion of gas-lit rolling stock to electric lighting.

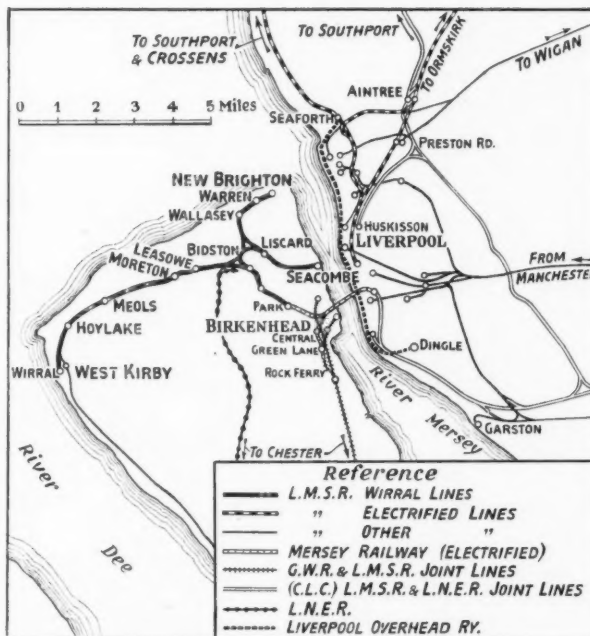
8.—Colour light signalling between York and Darlington and at Newcastle-upon-Tyne, Edinburgh (East), and Cowlairs.

9.—Extension of safety precautions (track circuiting and automatic train control).

10.—Additional accommodation for the fish trade at Hull and Grimsby docks.

L.M.S.R.

1.—Electrification of portions of the company's railway in the Wirral Peninsula and the establishment of through



L.M.S.R. lines in the Wirral Peninsula to be electrified so as to enable through local services to be worked via the Mersey Railway to Liverpool

passenger train working over that railway and the Mersey Railway between Liverpool and New Brighton and Liverpool and West Kirby, including the provision of rolling stock and other equipment.

2.—Conversion of Stonebridge Park (Wembley) power station to 50 cycles frequency and alterations of sub-stations and other works and equipment.

3.—Construction of 369 new steam locomotives.

4.—Construction of 270 new carriages.

5.—Reconstruction and replanning of the Euston terminus.

6.—Installation of colour light signalling between Euston and Willesden Junction and at Birmingham, Crewe, Preston, Rugby, Stafford, Warrington, and Wigan; provision of intermediate block sections at three points between

Crewe and Euston; extension of track circuiting and other signalling works.

7.—Improvement of accommodation at various passenger and goods stations.

Southern Railway

1.—Electrification of the following lines, including provision of rolling stock and other equipment:—

(a) Hampton Court junction to Portsmouth *via* Woking and Guildford.

(b) Woking to Farnham and Alton.

(c) Weybridge to Staines.

(d) Dorking to Arundel junction, and West Worthing to Havant, including the branches to Littlehampton and Bognor.

(e) Sevenoaks to Hastings and Bexhill, *via* Tunbridge Wells.

(f) Gravesend and Swanley Junction to Chatham and Gillingham.

(g) Strood to Maidstone.

2.—Construction of a portion of a new railway from Motspur Park to Leatherhead.

3.—Reconstruction of Templecombe, Twickenham, and other stations.

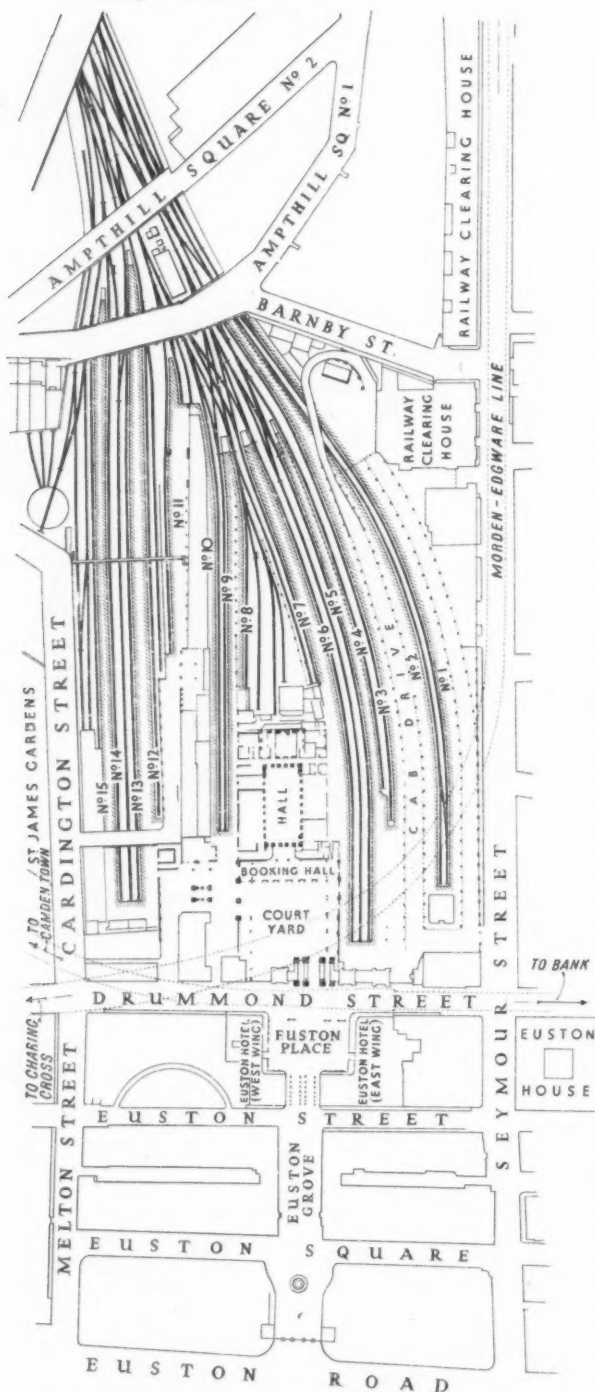
We refer editorially to this programme on page 764.

RAILWAY COMPANIES' STATEMENT

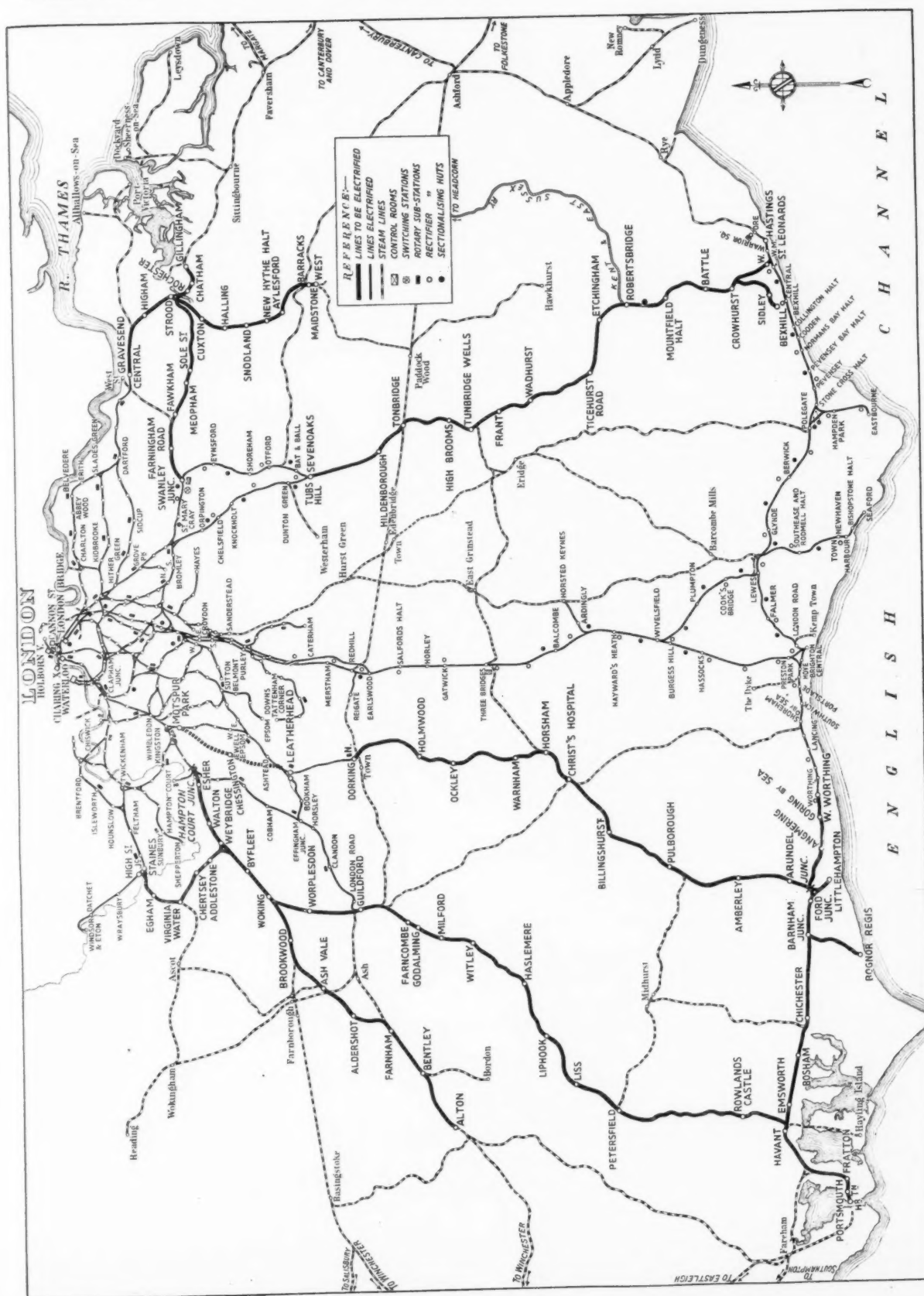
On Wednesday morning a statement in the following terms was issued by the British Railways Press Office on behalf of the four main-line railways:—

The Government has announced proposals designed, through the medium of a loan, to enable the railway companies to put in hand a programme of works estimated to cost about £30,000,000. The object of the loan, which is similar in nature to that created for the London Passenger Transport scheme, is to enable the railways to avail themselves of the present low rate of interest so that they may undertake certain approved works of public advantage, which they would not otherwise have undertaken at this time. The railway companies are in full sympathy with a policy intended to relieve present unemployment, and after careful consideration of the additional immediate burden on their finances and the possibility that the execution of the works at a time when they could no longer be delayed would ultimately involve heavier expense, have readily entered into the proposals of the Government. The works included in the lists approved by the Government will place the companies in a position to carry increased traffic with efficiency and will, it is considered, ultimately yield a profit to the shareholders; but it will be some time before works of this character may be expected in all cases to show full fructification, and for this reason the provision of a loan at a lower rate of interest than otherwise obtainable was an essential condition of the works being undertaken.

Recent years have shown a steady growth in the passenger traffic carried by the railway companies—both for business and for recreation purposes. If this growing traffic is to be handled with the speed and efficiency which are becoming more necessary every year, it is of the highest importance that the running facilities and station equipment on main lines and important branches should be of the most up-to-date character. Works of this kind, coupled with the improvement of signalling on main lines and at busy junctions, form therefore a large part of the programmes of the approved new works. The same object has influenced the companies in their schemes for the extension of electric traction, both on main lines and in suburban areas. The provision of more powerful and efficient locomotives, of more numerous and more comfortable carriages, are of great importance to meet the changing traffic conditions. The completion of these works will place the railway companies in a much more favourable position to provide a speedier, more adequate and more efficient train service for accommodating the increasing public requirements for all classes of traffic.



Layout of the present Euston station, which is to be reconstructed and replanned



Map showing the existing electrified sections of the Southern Railway and indicating the extensive additional mileage which it is now proposed to convert

THE LOCOMOTIVE, CARRIAGE & WAGON WORKSHOPS OF THE NIGERIAN RAILWAY

By Major M. P. SELLS, O.B.E., M.I.Mech.E., M.I.Loco.E., Chief Mechanical Engineer

PART II—The locomotive group, its sub-division, layout, machines, and general description

The locomotive group, which is controlled by an Assistant Works Superintendent, assisted by eight European foremen and assistant foremen, nineteen European charge-men, and fifty-one African assistant foremen and charge-men, is sub-divided into sections as shown in Fig. 6, which also shows the total establishment. The average number of Europeans in the workshops colony is 20.

together with an inspection report, is passed by the inspector to the progress officer, who, in turn, immediately advises the Locomotive Accountant. The Accountant prepares the debit on the Locomotive Storekeeper, who arranges to collect from the inspection department.

The tender shop is 350 ft. long by 65 ft. wide and is equipped with two wheel lathes, a journal lathe, an axle

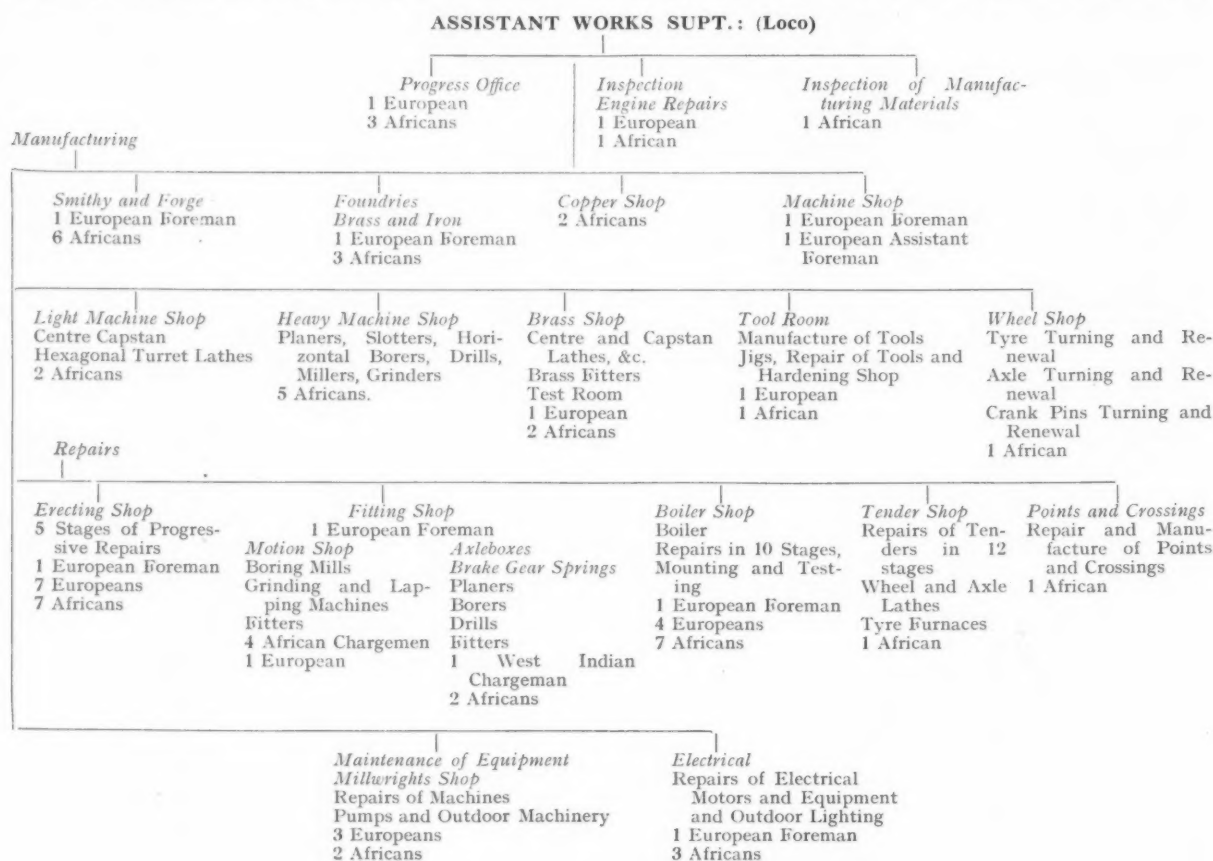


Fig. 6—Sub-divisions of locomotive group into sections

The inspection department is situated in the heavy machine shop but is entirely separate, being enclosed on all sides by expanded metal. This department, run by one African charge-man and two African artisans, deals with the inspection of all locomotive details manufactured in the machine shop, smithy and foundry. All locomotive details are catalogued and each individual detail has a distinctive number which is stamped on the article after inspection, together with the inspector's private stamp. Records are also kept showing the work order against which the articles are manufactured, so that any defective article can be readily traced. Having examined, passed and stamped the articles manufactured, the work order,

lathe, a wheel press, and two gas-fired tyre furnaces for removing and shrinking on new tyres. A progressive system of repairs is worked in 12 stages. The tenders arrive at the north end and are dismantled, the tanks being taken to stage 2 and the bogies to stage 7. At each stage suitable stands are provided for conveniently mounting the tanks and bogies whilst under repair. Certain repairs are done at each stage, and the tanks and bogies are moved from stage to stage as the work at each is completed. They finally arrive at the finishing stage simultaneously, when the repaired tank and underframe are mounted on to the completed bogies, the brake gear coupled up and the tender is ready for service, after

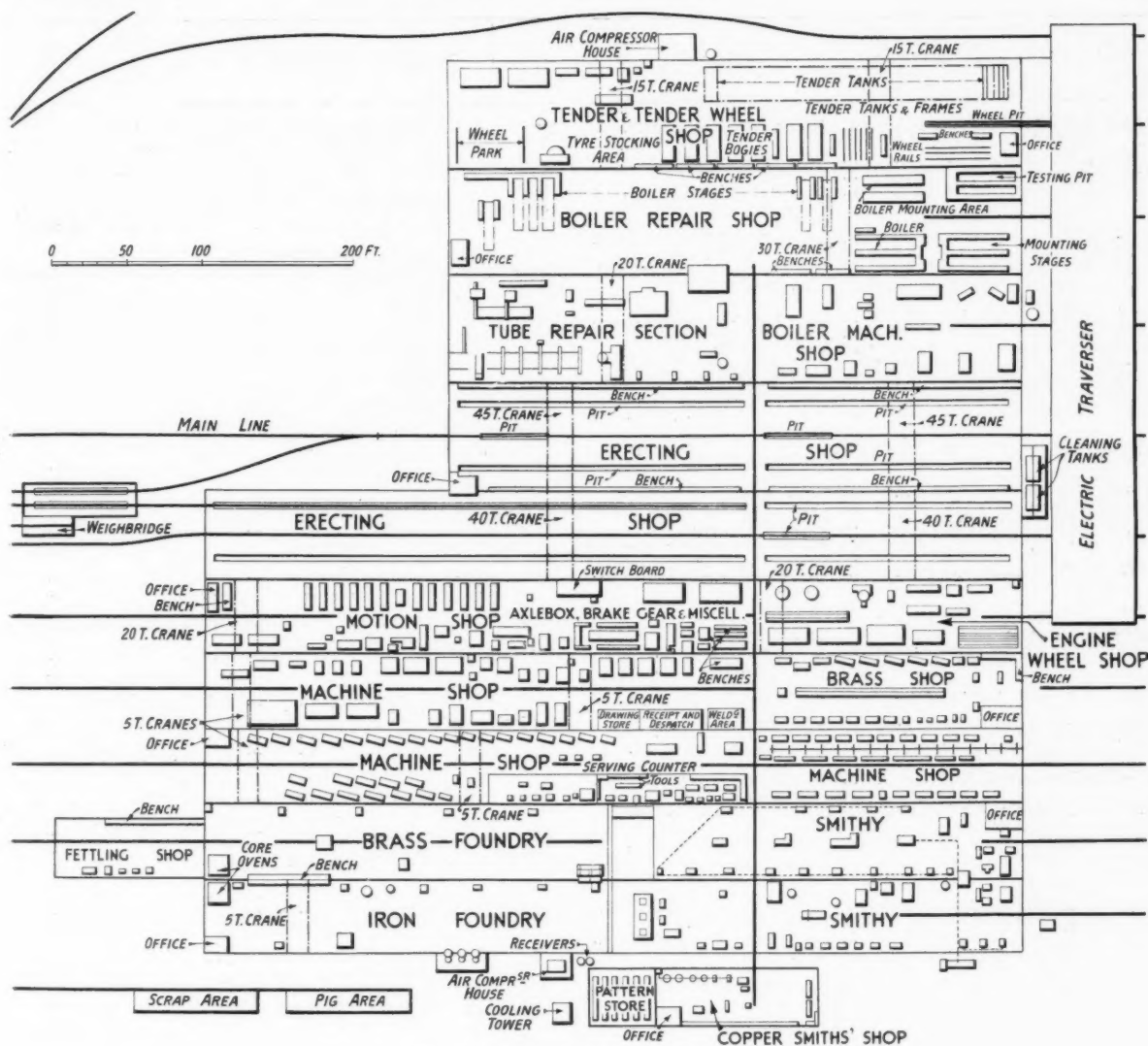


Fig. 7—Layout of locomotive group

LIST OF MACHINES IN LOCOMOTIVE GROUP

Shop Item No.	Description of Machine	Makers	Shop Item No.	Description of Machine	Makers
	BOILER SHOP (Repair)		155	Plate rolls, 6 ft. ...	Craven Bros. (Manchester) Ltd.
2	Portable drilling machine ...	Wm. Asquith Limited.	156	Plate rolls, 10 ft. ...	Rushworth & Co.
3	Double-headed tool grinder ...	B. R. Rowland & Co. Ltd.	157	Angle iron bending machine ...	Craven Bros. (Manchester) Ltd.
4	Hydraulic reducing valves ...	Stewarts and Lloyds Limited.	158	7-ft. radial drilling machine ...	Craven Bros. (Manchester) Ltd.
5	Hydraulic piping, &c. ...	Stewarts and Lloyds Limited.	160	Annular hearth, 5 ft. ...	Alldays & Onions Limited.
6	30-ton overhead electric crane	S. H. Heywood & Co. Ltd.	161-163	Smith's hearths, 3 ft. 6 in. ...	Alldays & Onions Limited.
7	Air compressor and receiver ...	Alley & MacLellan Limited.	166	Fixed riveter (hydraulic)	Fielding & Platt Limited.
	BOILER SHOP (Machine)		167	Plate curving machine (hydraulic)	Henry Berry & Co. Ltd.
141	Plate furnace ...	Alldays & Onions Limited.	168	6-ft. radial drill with 2 tables	G. Swift & Sons Ltd.
142	Progressive flanging machine	Fielding & Platt Limited.	169	Double-head dry grinder ...	L. Sterne & Co. Ltd.
143	100-ton flanging press ...	Henry Berry & Co. Ltd.	170	20-ton overhead electric crane	S. H. Heywood & Co. Ltd.
144	Tube welding machine ...	Clifton & Waddell.	171	3-throw hydraulic pumps ...	Fielding & Platt Limited.
145	High-speed circular saw ...	Clifton & Baird Limited.	172	Hydraulic accumulator ...	Fielding & Platt Limited.
146	Single-head grinding machine	B. R. Rowland & Co. Ltd.	173	Hydraulic piping and tank ...	Fielding & Platt Limited.
147	Tube testing machine ...	Sir W. G. Armstrong Whitworth & Co. Ltd.	179	Portable oxy-acetylene cutting and welding plant	Acetylene Corporation of Gt. Britain Limited.
148	Tube stretching machine ...	Fielding & Platt Limited.	180	Portable gap riveter (hydraulic)	Henry Berry & Co. Ltd.
149	Tube scaling machine ...	Crow Hamilton & Co. Ltd.	181	Portable firehole door riveter	Henry Berry & Co. Ltd.
150	Levelling block, 30 ft. by 3 ft.	Alldays & Onions Limited.	182	Horizontal boiler shell drilling machine	Campbells & Hunter Limited.
151-2	Punching and shearing machines	Craven Bros. (Manchester) Ltd.	183-4	Portable oxy-acetylene welding and cutting plant	British Oxygen Co. Ltd.
153	Plate edge planing machine ...	James Bennie & Sons Ltd.			
154	Cold sawing machine ...	Clifton & Waddell.			

Shop Item No.	Description of Machine	Makers	Shop Item No.	Description of Machine	Makers
629	Twist drill grinder ...	Alfred Herbert Limited.	857	Tangential all-gear head screwing machine	Kendall & Gent Limited.
630	No. 3 Adapta milling machine	J. Parkinson & Son.	858	Four-spindle nut tapping machine	J. Hetherington & Son Ltd.
631	6-in.-8½-in. tool room shaping machine	Butler Machine Tool Co. Ltd.	859	Nut facing and chamfering machine	J. Lang & Sons Ltd.
632	Allgear sensitive drilling machine	J. Archdale & Co. Ltd.	865	Bar heating furnace for 854 ...	Alldays & Onions Limited.
638	Double-head wet and dry tool grinder	B. R. Rowland & Co. Ltd.	866	Double-head dry grinder	L. Sterne & Co. Ltd.
639	Double-head wet tool grinder	B. R. Rowland & Co. Ltd.	867	Fan, motor and starter	Alldays & Onions Limited.
652	Tool hardening furnace	August Muffle Furnaces Ltd.	869	Heating furnace	Brett's Patent Lifter Co. Ltd.
654	Case hardening furnace	Alldays & Onions Limited.	870	Power press	Brett's Patent Lifter Co. Ltd.
655	Oil tempering furnace	Alldays & Onions Limited.	871	Battery electrically-driven drop hammers	Brett's Patent Lifter Co. Ltd.
658	Case hardening furnace	Alldays & Onions Limited.	872	Spring scrapping and testing machine	Craven Bros. (Manchester) Ltd.
663	Tool cooling stand	Alldays & Onions Limited.	873-876	Single smiths' hearths	Locally made.
IRON FOUNDRY			878	30-cwt. steam hammer	B. & S. Massey Limited.
682-3	Moulding machine (Munford)	J. W. Jackman & Co. Ltd.	879	Portable electric welding plant	Murex Welding Processes Limited.
683	Moulding machine (Munford)	J. W. Jackman & Co. Ltd.	880	Electrically-driven hacksaw	Shircliff Bros. Ltd.
684-5	Moulding machine jolters	J. W. Jackman & Co. Ltd.	881-2	1-ton jib cranes	R. C. Gibbins & Co.
686-7	Tabor moulding machine	Macnab & Co.	883	30-cwt. jib cranes	Locally installed.
688	Sand mixing machine	Britannia Foundry Co. Ltd.	884	Locomotive boiler	Metropolitan Vickers Electrical Co. Ltd.
689	Core oven	Locally built.	885	Fixed electric welding plant	Alldays & Onions Limited.
690-2	3-4-ton cupolas	Alldays & Onions Limited.	886	Angle iron block	W. & T. Avery Limited.
693	Charging platform and hoists	Alldays & Onions Limited.	887	Reheating and forging furnace	Alldays & Onions Limited.
694	5-ton overhead electric crane	Craven Bros. (Manchester) Ltd.	888	5-cwt. weighing machine	H. Morris Limited.
695	Pneulec oil sand mixer	Pneulec Limited.	889	No. 6 Empire blower	Buck & Hickman Limited.
BRASS FOUNDRY			890	2-ton jib crane	
726	3-pot furnaces	Morgan Crucible Co. Ltd.	891	Coke breaker	
727	2-pot furnaces	Morgan Crucible Co. Ltd.	MILLWRIGHTS' SHOP		
728	200-lb. tilting furnace	Morgan Crucible Co. Ltd.	916	15-in. centre lathe	J. Stirk & Sons Ltd.
729	400-lb. tilting furnace	Morgan Crucible Co. Ltd.	917	Radial drill	Jones & Shipman Limited.
730-1	Tabor moulding machine	Macnab & Co.	918-20	8½-in. centre lathe	Dean, Smith & Grace Limited.
732-3	Munford pneumatic jolters	J. W. Jackman & Co. Ltd.	921	Horizontal milling machine	J. Parkinson & Son.
734	Core oven	Alldays & Onions Limited.	922	Electrically-driven hacksaw	Shircliff Bros. Ltd.
735	Electric floor travelling crane	Royce & Co. Ltd.	923	4-ft. radial drilling machine	G. Swift & Sons Ltd.
744	Storage bins (steel)	F. Braby & Co. Ltd.	924	Single-head shaping machine	Butler Machine Tool Co. Ltd.
746	Core oven	Locally built.	926	9-in. slotting machine	Ward, Haggas & Smith.
FETTLING SHOP			927	Double-headed wet grinder	B. R. Rowland & Co. Ltd.
755	Tilghman's sand blast apparatus	Tilghman's Patent Sand Blast Co. Ltd.	928	Portable hand type screwing machine	Alfred Herbert Limited.
756-7	Double-head dry grinders	L. Sterne & Co. Ltd.	929-30	Belt lacing machine	R. Lloyd & Co. Ltd.
758	Git cutter, 1½-in. capacity	Britannia Foundry Limited.	933	Pin grinding machine	Craven Bros. (Manchester) Ltd.
759	Foundry rattler drum, 60 in. by 36 in.	J. Evans & Co. Ltd.	945-6	Belt lacing machine	R. Lloyd & Co. Ltd.
COPPERSMITHS' SHOP			947	Spur gear cutting attachment	Burton.
786-7	Coppersmiths' braying hearths, 4 ft. 9 in. dia.	Alldays & Onions Limited.	948	Bevel gear cutting attachment	Burton.
788-9	Coppersmiths' braying hearths, 2 ft. 6 in. dia.	Alldays & Onions Limited.	961	30 ft. by 5 ft. by 5 in. planer	Butler Machine Tool Co. Ltd.
790-1	Coppersmiths' braying hearths, 21 in. square	Alldays & Onions Limited.	962	Wet and dry grinder	K. Johnson & Sons.
792	Levelling slab, 4 ft. by 2 ft.	Alldays & Onions Limited.	964	30-in. cold saw	Clifton & Waddell.
793-795	Monometer die casting plant	Monometer Manufacturing Co. Ltd.	965	Rail bending machine	Fielding & Platt Limited.
796	Runway and 2 hoist blocks	Braithwaite & Co. (Engineers) Ltd.	966	3-spindle rail drilling machine	Wm. Asquith Limited.
797	Hydraulic pipe bending machine		967	Smith's hearth with fan	Alldays & Onions Limited.
799	Power hacksaw	Shircliff Bros. Ltd.	968	Levelling block, 18 ft. by 6 ft. by 6 in.	Alldays & Onions Limited.
801	Pipe screwing machine	Alfred Herbert Limited.	969	2-ton jib crane	H. Morris Limited.
SMITHY			970	8 in.-10 in. high production slotter	Butler Machine Tool Co. Ltd.
815-818	Double smiths' hearths	Alldays & Onions Limited.	971	1-ton overhead hand crane	H. Morris Limited.
819	Single smiths' hearths	Alldays & Onions Limited.	SUB-STATION		
820	20-cwt. steam hammer	Alldays & Onions Limited.	1151	H.T. switchboard with 3 power and 2 lighting panels	Metropolitan Vickers Elec. Co. Ltd.
821	20-cwt. pneumatic hammer	B. & S. Massey Limited.	1152-4	550 kVA. transformers for rotary converter	" " "
822	5-cwt. pneumatic hammer	B. & S. Massey Limited.	1155-7	550 kW rotary converter	" " "
823	Hot circular saw	Craven Bros. (Manchester) Ltd.	1158-60	Starting switchgear for rotary converter	" " "
825-829	Double smiths' hearths	Alldays & Onions Limited.	1161-2	150 kVA. transformers for lighting	" " "
830-831	Single smiths' hearths	Alldays & Onions Limited.	1163	Low-tension a.c. switchboard and connections	" " "
832	Levelling block, 6 ft. by 4 ft.	Alldays & Onions Limited.	1164	Low-tension d.c. switchgear and connections	" " "
833	Spring furnace, 8 ft. by 5 ft.	Alldays & Onions Limited.	1165	Power control board (loco.)	" " "
834-5	C.I. levelling plates for setting springs	Alldays & Onions Limited.	1166	Power control board (C. and W.)	" " "
836	Spring plate heating furnace	Alldays & Onions Limited.	1167	Power control board, sawmill	" " "
837	Hydraulic accumulator and pump	Fielding & Platt Limited.	1168	Lighting control board, loco. group	" " "
838	Buckling machine (hydraulic)	Fielding & Platt Limited.	1169	Lighting control board, C. & W. group	" " "
839	Angle and tee bar cropping machine	Craig & Donald Limited.	1170	10-ton overhead hand-crane	Consolidated Pneumatic Tool Co. Ltd.
840	Spring plate nibbing machine	Craven Bros. (Manchester) Ltd.	1171	Electric blower (portable)	Metropolitan Vickers Elec. Co. Ltd.
846-848	Single smith hearths	Alldays & Onions Limited.	1172	Switchboard (a.c.), with 2 outgoing feeders	" " "
849	Horsfall bolt forging machine	Greenwood & Batley Limited.	1173	Switchboard panel for lighting	" " "
850	Heating furnace for above	Samuel Platt & Co. Ltd.	1174	Switchboard (d.c.) panel	" " "
851	Bolt head machine	D. Etchells & Sons Ltd.	1175	Switchboard 5-panel flexible unit type	" " "
852	Bolt head stripping machine	D. Etchells & Sons Ltd.	1176	Evershed megger	Evershed & Vignoles Limited.
853	Bolt pointing machine	D. Etchells & Sons Ltd.			
854	Hot press nut making machine	D. Etchells & Sons Ltd.			
855	Nut friezing or feming machine	D. Etchells & Sons Ltd.			
856	Tangential all-gear head screwing machine	Kendall & Gent Limited.			

painting. This shop is supervised by an African charge-man, assisted by headmen at the various stages. An African ex-apprentice acts as progress officer, and is responsible for seeing that the tanks and bogies move from stage to stage at the predetermined times, and that the necessary spare parts are available at the appropriate stage, as and when they are required. The average time taken to effect a complete repair to a tender is 25 days.

Boiler Shop

The boiler shop is 350 ft. long by 65 ft. wide and is run on a similar progressive system in 10 stages, the boilers moving from stage to stage as the work is completed. Platforms have been erected at stage 9, complete with benches, vices and the necessary equipment, so that the work of mounting is easily accessible. Each stage is supervised by an African chargeman, under whom are the boilermakers and other artisans allotted to each stage. A senior apprentice acts as progress officer, with the same duties as the man in the tender shop. The boiler shop is provided with a store in which all tools used in the boiler shop are repaired and stored. There is a steaming pit on which boilers are tested by hydraulic and steam pressure. Stands are provided round the boilers at the stages where stays are removed and replaced, fitted with balance weights on a chain over a pulley for counterbalancing the pneumatic hammers, rivet cutters, riveters, tappers, &c., which are used in removing and replacing crown stays and water space stays.

Boiler Machine Shop

The boiler machine shop is 350 ft. long by 65 ft. wide and is provided with the necessary machines for dealing with the plates, angles and tubes used in the construction and repairs to boilers. The tube section has a reeling machine for taking the hard scale off the outside of tubes. The tubes are then sawn to remove the damaged ends, after which they are welded to a short end to bring them to the correct length. The tube is "belled" and the short length ground down on the end to fit the belled end of the tube. After heating, the tube and the short piece are welded together in a machine with revolving rollers which roll the tubes together on a centre mandrell. The tubes are then ground on an emery stone and tested by hydraulic pressure. Africans have been taught this process and are quite expert at it, and an African chargeman supervises the tube section. This shop is provided with a plate edge planer, a hydraulic riveter, hydraulic flanging press, plate rolls, two shearing machines, and the usual drilling machines. Space is provided for the repair of ashpans, firehole door gear, smokebox door fittings and other boiler accessories. With the equipment available, old boilers can be fitted with new plates, and new boilers can be built up with plates and flangings purchased from England. It is an excellent training ground for Africans, as boiler making is a highly specialised work and extreme accuracy is required in marking out plates and drilling holes. The boiler shops are supervised by a European foreman and two European chargemen, with African chargemen under them.

Erecting Shop

The erecting shop consists of two bays, one 350 ft. long by 65 ft. wide and the other 500 ft. long by 55 ft. wide, and has accommodation for 30 engines, including those engines which are being stripped. The system employed in this shop is also organised on a progressive system of 5 stages, at which certain definite operations are carried out. Stage 1 consists of stripping and forwarding to the boiling bosh for cleaning, after which all parts are forwarded to the works inspector for examination and pre-

paration of the stripping report. Stage 2 is utilised for the examination and gauging of frames, renewal of frame bolts and rivets, cleaning of steam chests and erection of slide bars. Stage 3 is for the refitting of steam pipes, smokebox details, piston valves, pistons, motion, and boiler mountings. Stage 4 is for the replacement of wheels and axleboxes, connecting rods, valve setting, coupling rods, and brake gear. Stage 5 is the steaming shed, where engines are steamed, adjusted, weighed and prepared for trial.

There are four Europeans and seven African chargemen in the erecting shop. Complete rebuilds of engines are carried out in this shop, and there are at the time of writing four engines being converted with new frame plates, and motion brackets ordered from England; using existing wheels, cylinders, bogies and such details as were standard. The boilers have been fabricated from the firebox shell and first barrel ring of some existing Yorkshire iron boilers, which are in excellent condition, taken from an obsolete class of engine. A new firebox has been fitted with M.L.S. type superheater and a new front barrel plate. The existing boiler mountings have been used where these were standard. These were tender engines for passenger service, of the 4-6-0 type, with 4 ft. 6 in. wheels and are being converted into the Nigerian Railway standard class of 4-6-4 side tank engines. The tanks, bunkers and cabs have been made locally.

Motion and Axlebox Shops

Alongside the erecting shop are the motion and axlebox shops. In the former shop the coupling and connecting rods, pistons and piston rods, crossheads, slide bars, motion and reversing gear are repaired. Boring machines bore out the coupling rod bushes to exact sizes and centres; while grinding machines grind up the motion pins, slide bars and piston rods to certain predetermined dimensions. An underlying principle is that the machines are located as near as possible to where the work is being done, thus saving unnecessary handling. The shop is sectionalised to deal with each group of parts mentioned above, and each section is under the control of an African chargeman or headman. In the centre of the shop is a marking-off table, where parts requiring machining are marked off by an African chargeman and one assistant.

The axlebox section deals entirely with the repairs to axleboxes, brake gear, spring gear and crank pin washers. A progressive system is in operation for the repair of axleboxes, which are routed through the various operations in the proper order. The necessary machinery is available for planing, boring, drilling and shaping axleboxes. The axleboxes, springs and spring gear are then mounted on the wheels ready for the engine to be lifted on to them in the erecting shop.

Heavy Machine Shop

The heavy machine shop contains groups of drilling machines, shaping machines, vertical milling machines, slot drills, horizontal milling machines, slotters, planers and boring mills, each group being under the supervision of an African chargeman responsible to the machine shop foreman; an African journeyman or apprentice machinist is allotted to each machine. At the south end of this shop is situated the marking-off table, where all castings and forgings for the above group of machines are marked off by African chargemen and apprentices under the supervision of the machine shop foreman. These apprentices have had training in the drawing office and are capable of reading blue prints and marking off castings and forgings.

We hope to publish the next instalment of this article in our issue of November 30.

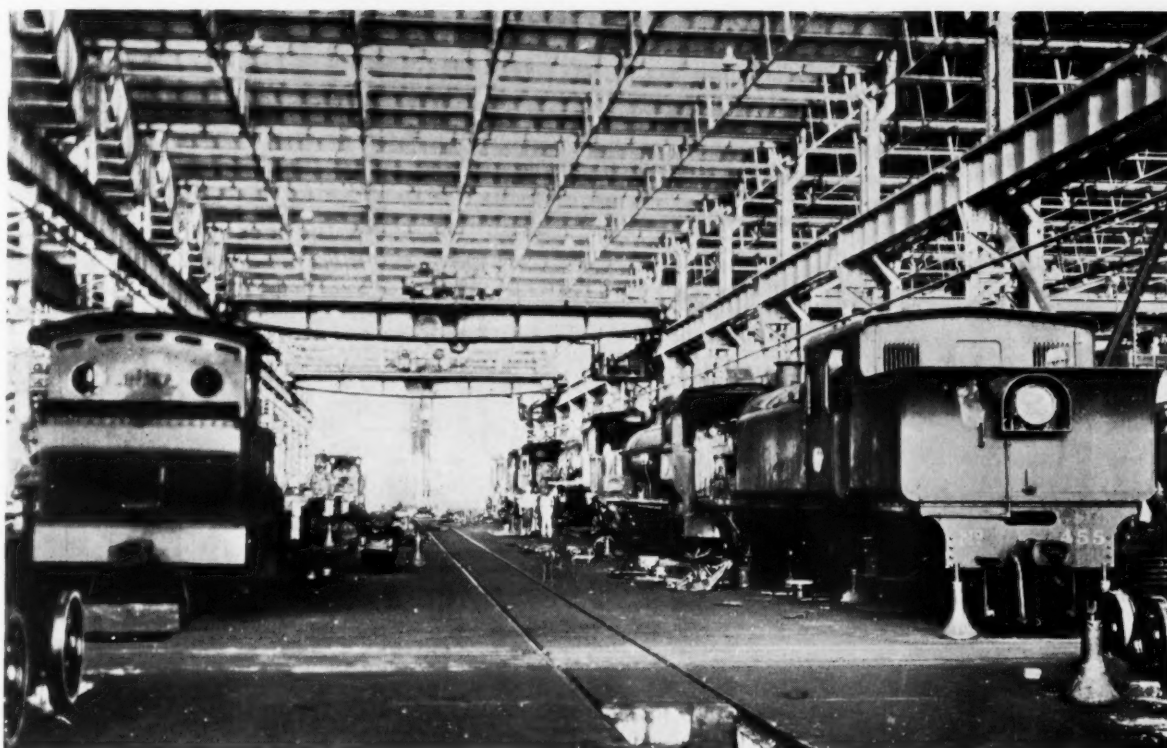


Fig. 8—Erecting shop at Ebutte Metta workshops, Nigerian Railway : heavy repairs, left ; service repairs, right

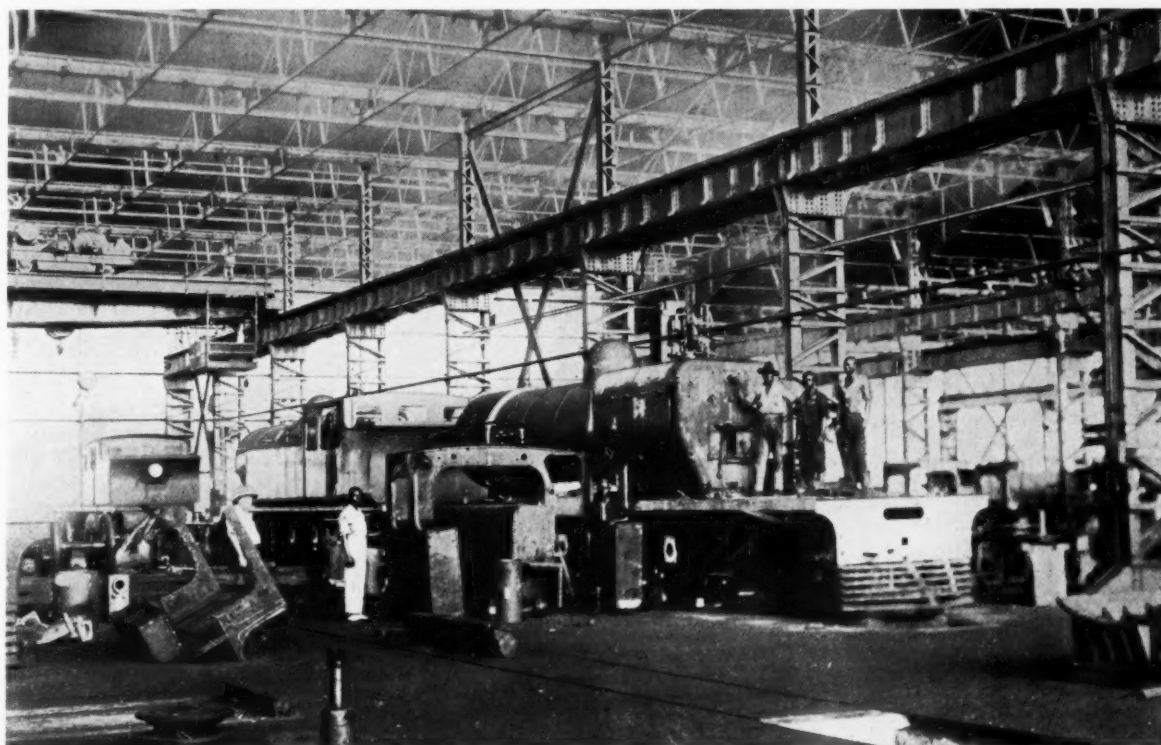


Fig. 9—Erecting shop new bay : engines undergoing rebuilding in foreground ; running repairs in background

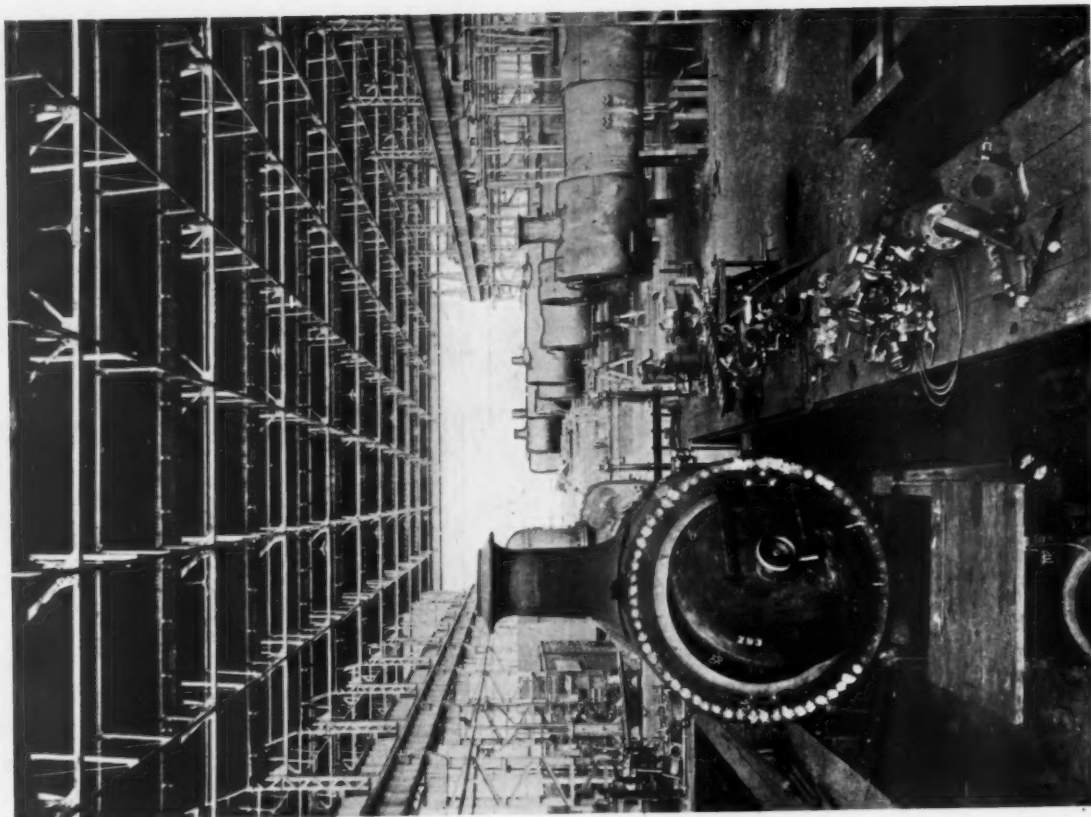


Fig. 11—Boiler repair shop : mounting stage in foreground

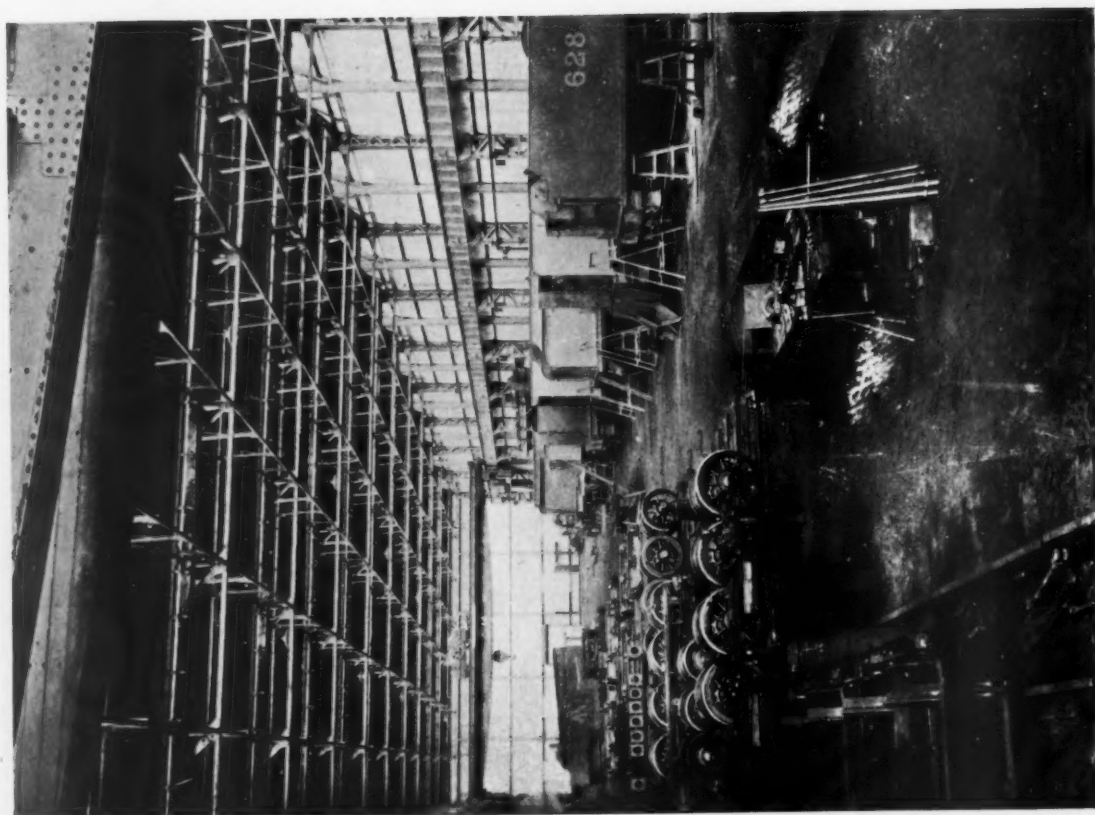


Fig. 10—Tender repair shop



Fig. 13—Fitting shop, axlebox section : motion bay in background
THE LOCOMOTIVE, CARRIAGE AND WAGON WORKSHOPS OF THE NIGERIAN RAILWAY
(See article on page 776)

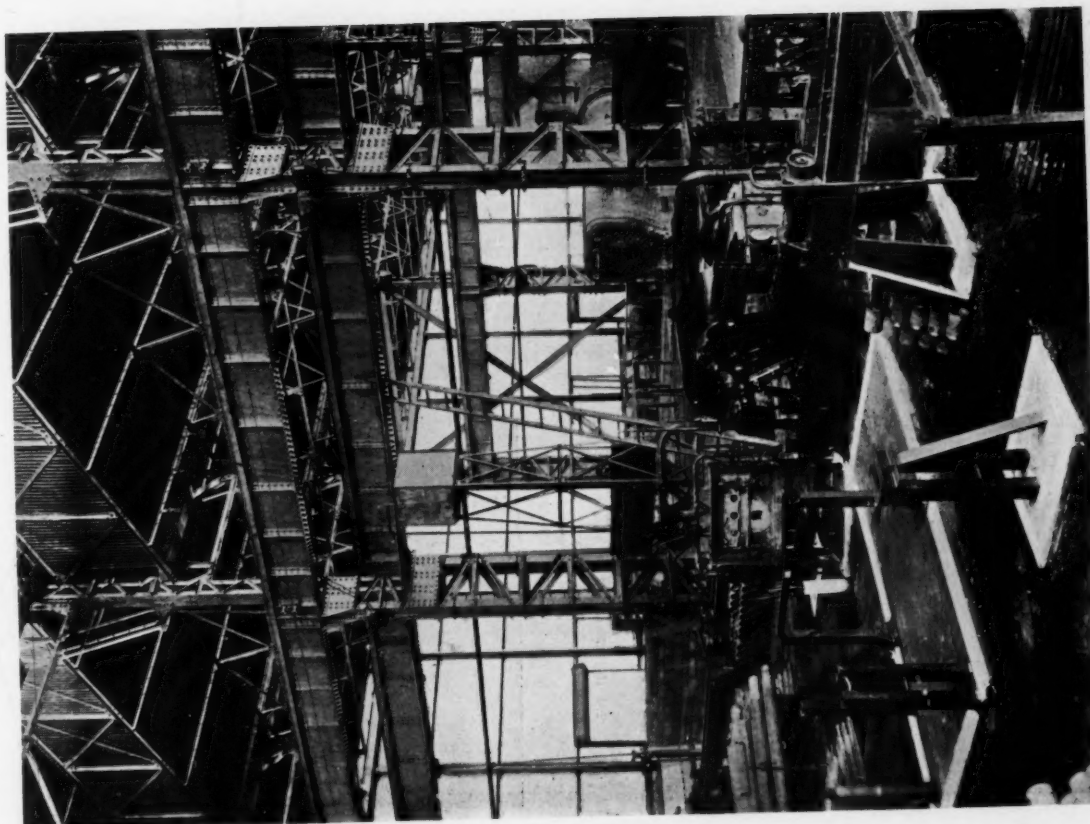


Fig. 12—Tube repair section
THE LOCOMOTIVE, CARRIAGE AND WAGON WORKSHOPS OF THE NIGERIAN RAILWAY
(See article on page 776)



An aerial view which clearly shows the H formation of the new Pickfords depot at Willow Walk. Note how the roof projects over the space where unloading and loading takes place



The petrol pumps and the portable servicing plant which supplies grease, engine oil, gear oil, air, and water to the vehicles



At the entrance to the depot there is a 25 ton weighbridge, while at the exit there is a 20 ton weighbridge

RAILWAYS AND ROAD TRANSPORT SECTION

This section usually appears at four-weekly intervals. The present issue has been produced to coincide with the Commercial Motor Transport Exhibition. The next one will appear in our issue of December 20

New Pickfords Depot at Willow Walk

AT the opening of the new depot for Pickfords Suburban Goods Service at Willow Walk in South London on Monday last, Sir Josiah Stamp, as we record fully on page 801, gave glimpses of the history of the famous firm during its existence of three centuries, so there is no need to make further reference to that. The following notes will therefore be confined to the depot, its traffic, and the scheme of organisation.

During the 69 years that the firm of Pickfords used the depot at Long Lane, from which it has just moved, the traffic handled by this department has increased enormously in volume and varied considerably as to its nature, due to a large extent to the changes in retailing methods. It may be pointed out here that much of the traffic handled is of a trade nature, although, of course, any parcels or goods offered by private firms are dealt with. The fact that a goodly proportion of the goods making up each collection originates from one or two consignees does simplify matters at the depot.

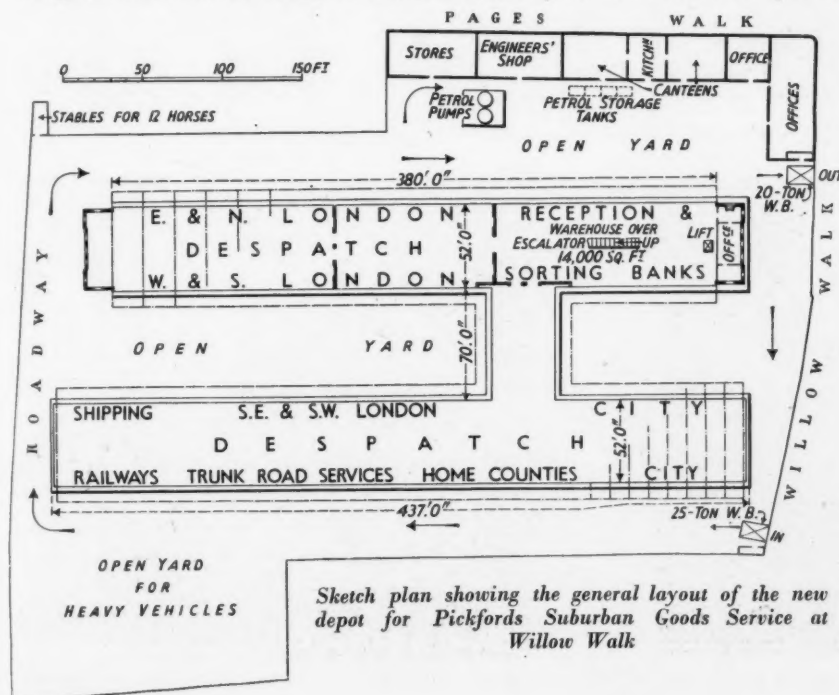
A fine site for a new depot was found in Willow Walk on the ground once used as a goods yard by the Southern Railway. All the old buildings were cleared with the exception of a few at the side which offered the possibility of being easily adapted for use as offices, canteens, engineers' workshop, and stores. The mention of the canteen is a reminder that the work of the depot goes on throughout the whole 24 hours, so that it is necessary to

make provision for serving meals to drivers and staff. In the centre of the ground it was decided that the heart of the depot, the sorting station, should be in the form of an H as shown in our sketch plan and revealed strikingly in the photograph from the air. One leg of the H is given up to receiving the goods while the other three are taken up with the despatch. One-way traffic is enforced in the depot, the vehicles entering in by one gate and passing over a 25-ton weighbridge and leaving by another gate at which there is a 20-ton weighbridge. The vehicles coming in from collection proceed to the reception banks, unloading taking place on both sides during busy periods, although naturally only the outer face is used at other times, and then the empty vehicle proceeds to its allotted place at the despatch bank to receive its load for delivery in its area.

Almost as soon as a fresh load arrives the work of sorting begins; this work is performed by a fleet of five Lister petrol platform trucks working 50 trailers. In this way the goods are quickly taken to the bay, where they are stacked to await the arrival of the van to take them to their destination. The bays are arranged in a definite order, those for the suburban districts being at the other end of the platform, of which part is given up to reception. City areas and a few other London districts are served from the inner faces of the other long platform covered with a span roof, which is reached by a connecting

bank at which certain traffic is handled occasionally. The remainder of the other despatch platform is used for the services to the docks, main line railway stations, trunk road services, and the deliveries in the Home counties. The trunk road services are run from places like Leicester, Bristol, Birmingham, Northampton, Nottingham, Bournemouth, Portsmouth, Eastbourne, Brighton, Dover, Ramsgate, Maidstone and Chatham, and Tunbridge Wells. In some cases, like the two last mentioned, delivery and collection are made *en route*, but in others the journey is made during the night, collection being carried out during the afternoon and delivery of the goods from London being made the next morning. At some stations, like Birmingham, there is a receiving and sorting depot.

Only goods which are in process of being received,



Sketch plan showing the general layout of the new depot for Pickfords Suburban Goods Service at Willow Walk

Pickfords New Depot at Willow Walk



A view along the outer face of the despatch platform



View showing how the goods are arranged in bays along both sides of the despatch platform



In this view of the warehouse, the upper end of the escalator, on the left, and the lift, at end of passage, are shown



The escalator taking goods to the warehouse



A Lister truck with trailers taking goods to despatch bays

sorted; or despatched are allowed on the platforms. Any goods which have to remain at the depot for any time are at once transferred to the light and roomy warehouse erected above the platform, of which part is the reception bank. For their transference there is a lift and also an escalator. Just by the reception bank there is the office for the Manager and his assistants. The general offices, cashiers', and information departments are in an old building by the exit gate. Adjacent to them are the staff and drivers' canteens, the engineers' stores and workshop for minor repairs, while alongside are two petrol pumps, and nearby is a washing place served by a B.E.N. equipment. The servicing of the vehicles in the way of engine

and gearbox lubrication and tyre inflation is done by a Skyhi installation mounted on a Lister truck. The main repair depot and maintenance for vehicles continues at Long Lane. There are 120 motor vehicles belonging to the department, mostly Bedfords, using the depot as well as 19 horsed vans, and there is stabling for 12 horses.

Protection against fire is afforded by a sprinkler system by Mather & Platt Limited, as well as Pyrene fire extinguishers. The escalator was made by the Paterson Hughes Engineering Co. Ltd., and the lift by J. & E. Hall Limited. The weighbridges are by S. Parsons & Co. Ltd., of Bradford, and Hart weighing machines, up to 5 cwt., are installed on the platforms.



Here are seen goods awaiting the arrival of the vans which will take them to their destinations in the Home Counties. Note the names of the delivery areas above each bay

The Commercial Motor Transport Exhibition

DURING the two years which have elapsed since the previous exhibition of commercial vehicles was held at Olympia there have been influences at work that have considerably affected this branch of automobile design. The importance which unladen weight assumes in deciding the taxation on goods vehicles has directed much attention to this matter and the expert visitor to the exhibition will see immediately that many makers have succeeded in reducing the weight of chassis without sacrificing anything in the way of strength. It is perhaps a little surprising that more attention has not been directed to this matter before, especially as the research work of the metallurgists has resulted in the production of lighter and stronger metals.

Apart from that, the 390 vehicles included in the present show cover a very wide range on both the passenger and goods sides, as well as taking in many types—the passenger vehicles ranging from taxicabs to the large trolleybuses while on the goods side the variety is even greater between the 5 cwt. three-wheeled parcel van and the eight-wheeled lorries for carrying 16-ton loads.

It is indicative of the greater interest that is now being taken in the progress of the commercial vehicle side of the motor industry that it has been decided that the present exhibition shall remain open until 10 p.m. each evening. It is the twelfth of the biennial series organised by the Society of Motor Manufacturers and Traders and continues until Saturday, November 16. As in previous years a number of conferences have been arranged. On Thursday, November 14, at 11 a.m., there will be a conference of the Railway Companies Association at which Mr. F. C. A. Coventry, Superintendent of Road Transport, G.W.R., will open a debate by submitting "That the present day motor manufacturers have not yet generally

recognised the importance of the short-distance haulier and his requirements."

As indicative of the changes that have taken place in vehicle design in recent years it may be observed that steam is no longer represented, as it used to be, but some of the famous names associated with that means of propulsion are found there, albeit they are to be found on oil-engined vehicles. It is rather surprising, too, that there is but one example of the electric vehicle as there has been some progress made in the direction of providing vehicles of this type for collection and delivery work in urban areas.

The exhibition provides an admirable opportunity of seeing the advance in such details of automobile design as engines, gearboxes, back axle, brakes and so on and the past two years have been fruitful in this respect. In transmissions alone there is an excellent variety and in most cases they are able to show a fine record of performance in service on the road. As regards bodywork it may be noted that metal panels are now being used with more confidence as the merits of this type of construction have been well tested under working conditions. There is not so much scope for the exercise of streamlining but its influence can be seen in rounded corners and in graceful curves, especially on the closed types of bodies.

In the following pages are given some notes regarding exhibits which should be of outstanding interest to those connected with railways or railway-associated companies. They relate not only to road vehicles themselves but also to components, accessories and equipment which play such a large part in the efficient maintenance of the fleet under the severe conditions which obtain in railway service.

Albion Motors Limited. STAND NO. 70. From the 29 Albion types, the six on the stand comprise four goods and two passenger models. There is the 4½ tonner which, with a chassis weight of but 36½ cwt., can be driven in the United Kingdom at a maximum speed of 30 m.p.h., while the 6-7½ tonner is in the 4-ton unladen class, its improvements including the triple servo brake and a taller, narrower radiator. The 12-13 ton six-wheeler is exhibited in chassis form, while the bonnet type 2-2½ tonner has a body of the fixed tilt type. The larger of the passenger machines is one of the Valiant chassis, with an Albion-Ricardo six cylinder oil engine, rated at 38-74 h.p. The chassis carries a 32 seater coach body. The other is an Albion Victor 32 seater bus for Kenya Motor Services (Mombasa) Limited, with compartments for first and second class passengers.

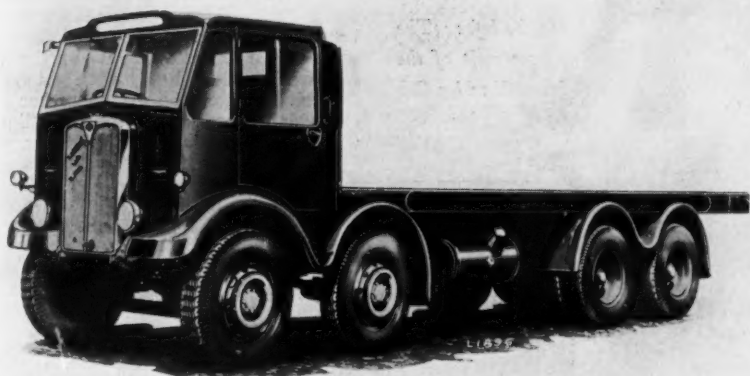
Associated Equipment Co. Ltd. STAND NO. 78. Of the six A.E.C. vehicles on this stand the new Regal, Mark II stands out. It has one of the latest 100 b.h.p. A.E.C. oil engines, and the compactness of this unit has permitted another 6 in. being given to the body space. It carries a 34 seater

bus body. A Regent double decker with 56 seats and one of the Q type 29 seater luxury coaches as well as a chassis of the A.E.C.-English Electric trolleybus chassis, similar to the 252 on

order for London Transport, are also on the stand. The freight vehicles in the recently introduced light weight Mark II range are represented by a Matador, for carrying a gross load of 12 tons,



One of the Albion Valiants, with Duple bodywork, similar to one on the firm's stand at Olympia



An A.E.C. Mammoth Major 8-wheeled flat platform lorry. With a load of 16 tons it is the largest British rigid lorry in the 6-ton licensing class

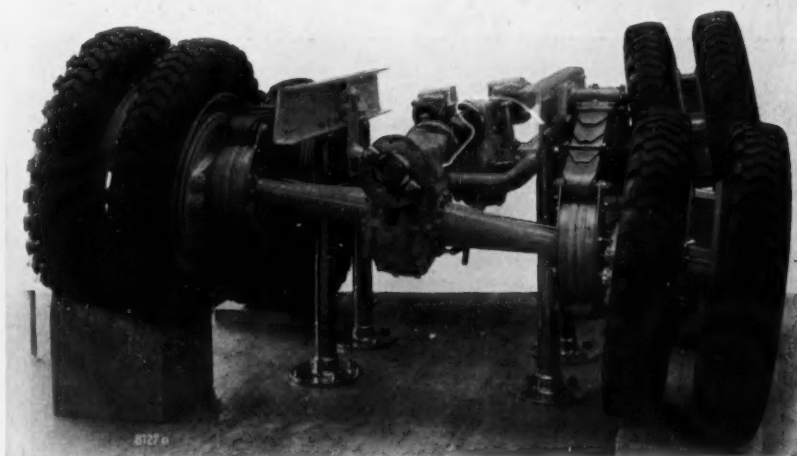
and a Mammoth Major 8-wheeled, flat platform lorry. There is also one of the 4 cylindered A.E.C. oil engines, with Ricardo Comet head, on view.

Eagle Engineering Co. Ltd. STAND No. 66. One of the most interesting exhibits here is the 6-ton Eagle hydraulically-operated tipping trailer, for use with the Scammell mechanical horse, with its ingenious design of swivel pipe connecting the tractor to the trailer for tipping the body. Another outstanding item is the Eagle-Thornycroft articulated six-wheeler, fitted with the Eagle patent telescopic underslung hydraulic tipping gear, operated from a rotary pump on the tractor chassis. Attention should also be directed to the two wheeled Eagle trailer with independently sprung axle, a unit that is suitable for a two, four or multi-wheel trailer. There are also several municipal vehicles on view, including the Pactum body with a hydraulic ram for compressing the refuse.

English Electric Co. Ltd. STAND No. 125. Here are displayed three



6-ton hydraulically operated tipping Eagle trailer for operating with Scammell Mechanical Horse



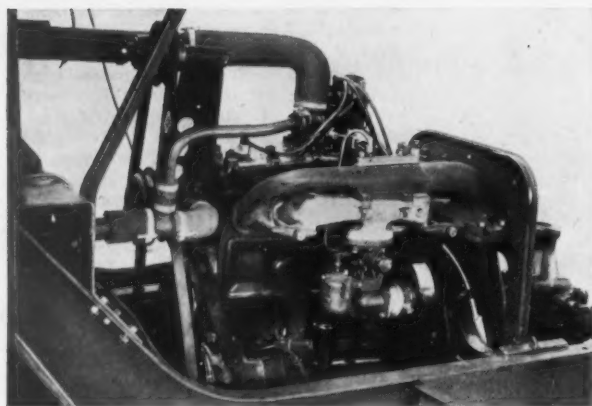
The rear axle unit of a Henschel cross-country vehicle mounted so as to show its flexibility

examples of the body work of the company's Dick Kerr works, Preston. The first is a 50-seater double deck body on an A.E.C. trolleybus chassis with English Electric equipment. The body is of all-metal, all-welded construction specially designed to meet trolleybus requirements, especially as regards insulation. Another double decker is mounted upon a Leyland Titan chassis. In this case it is for 48 passengers, equally divided between the two saloons. The construction is of the reinforced composite type, and this is also the method adopted for the third vehicle—a coach for 31 passengers, mounted on an Albion Valkyrie chassis.

Henschel & Sohn A.G. STAND No. 134. One of the four vehicles on this stand is a complete lorry for 2½-ton payloads and it has the 65 h.p. four cylinder Henschel-Lanova diesel engine. A bus chassis is of similar design in

many ways except for the frame. Another light vehicle type is distinguished by its high clearance and single rear wheel tyres, while it is fitted with an emergency low gear. The 5½-ton truck is a representative of the heavier types, and it may be fitted with either a specially low gear or a super-gear. There is also on view a rear axle unit of the cross-country type; it is driven by two overhead worms and it is mounted so as to show the flexibility of this arrangement. Examples of 6 and 8 cylinder engines are also shown, the former sectioned.

Karrier Motors Limited. STAND No. 77. By the side of the newest six wheeled trolleybuses are the improved models of the Cob Junior and Cob Senior mechanical horse tractors. They have been redesigned and the Cob Junior now has a 14.47 h.p. four cylinder engine and the Cob Senior a 21.70 h.p. six cylinder engine, while the new type of coupling gear common to both



On the left: The power unit of the latest Karrier Cob junior

long wheelbase Leader 4 ton chassis, and includes vehicles arranged for dealing with loads of 1, 1½, 2 and 3 tons, some of the lorries being arranged with forward and others with normal control. One of the 2-tonners has an end tipping body with the floor lined with sheet steel and the telescopic

models has the added advantage of functioning with either four ton or six ton trailers. The Colt follows similar lines to the Cob Junior except that the frame is extended to form the basis of a load-carrying body and that the coupling and trailer brake gear is omitted. The Bantam 2-ton freighter has been slightly modified in detail and the appearance enhanced by the fitting of a coachbuilt cab.

Latil Industrial Vehicles Limited. STAND No. 123. Three of the Latil Trauliers are on view including one with a producer gas fuel plant and another with guide wheels to enable it to be used on railways when required. It may be recalled that this vehicle has a four wheel drive with all wheels steering so that it is able to go anywhere, especially if the wheels are fitted with the special folding spuds. The Trauliers are normally fitted with a four cylinder petrol engine. The timber hauling equipment is also being displayed; with this the Traulier is able to go into the wood and haul the butt to a position where it may be loaded on the trailer which it will then pull to the destination. There is also on view a tank-trailer of aluminium construction with three separate and self-contained compartments of a gross capacity of 3,520 gallons.

On the right: One of the new Leyland Cubs with a load of machinery

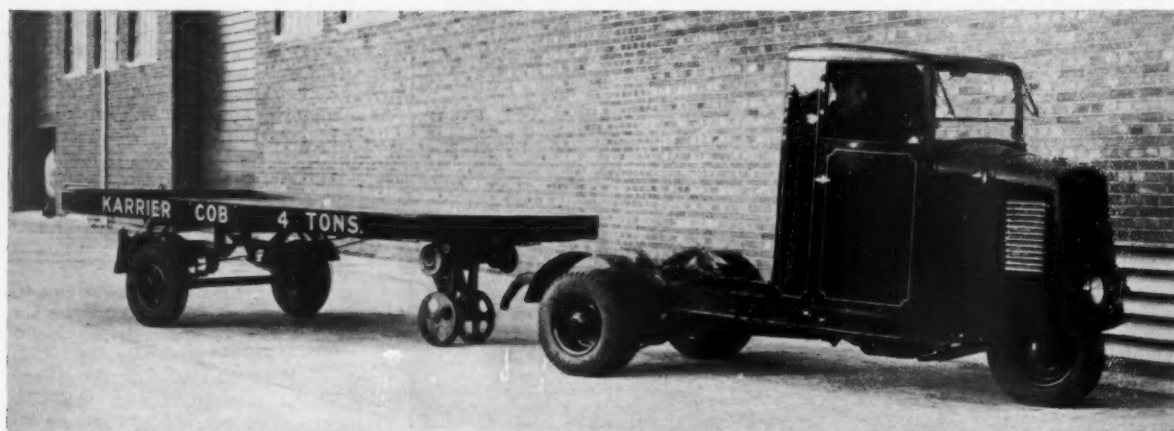


Leyland Motors Limited. STAND No. 73. Here is a new design of passenger chassis—called the Cheetah—fitted with a new type of Leyland oil engine. This latest chassis is designed for services on which the gross weight of the vehicles, with passengers, must not exceed 7 ton. The latest light-six petrol engine can be seen in one of the Leyland Cub four tonners. This unit has valves operated by rockers and push rods from the camshaft in the crankcase. A third exhibit is an oil-engined double decker with the improved torque converter and Leyland all-metal body of the Hybrid type while the heavy freighters shown are the 4-cylinder oil-engined 6-8 ton chassis and the Octopus 8-wheeler, on which will be mounted a box van body.

Morris Commercial Cars Limited. STAND No. 15. The range here runs from the 15 cwt. standard van to the

screw gear hand-operated. The engines represented in this range are the 13-9 h.p. (32 b.h.p.) four cylinder and the 24-8 h.p. (55 b.h.p.) six cylinder, while the 30 cwt. standard lorry has a four cylinder engine of similar rating and power to the six cylinder unit.

Principality Wagon Co., Ltd. STAND No. 136. On this stand there are three examples of the end-discharge Principality moving floors, one on a Leyland oil-engined chassis with a drop-sided body, another on a Thornycroft Trusty chassis with a 7 ft. movable sack rail, and the third on a 3-ton trailer for use with a Scammell Mechanical horse. There are a good many of these movable floors in use on open truck bodies in the service of the Great Western and L.M.S. railways, and repeat orders have recently been placed by these railways. There is also the Barrier-type Principality body used by



The new Karrier Cob Junior tractor with its trailer to carry a load of 4 tons



An example of the Principality moving floor fitted to a lorry in L.M.S.R. service

many municipalities for the collection of refuse, and examples of these are to be seen on several stands in the exhibition.

Ransomes, Sims and Jefferies Limited. STAND No. 94. Dominating this stand is one of the fleet of 50 trolleybuses which Ransomes are supplying to Cape Town, with a 62-seater all-metal body by Weymann's Motor Bodies (1925) Limited. The chassis includes the 80 h.p. motor of Ransomes' own design and manufacture and the firm's patent system of control whereby regenerative braking is obtained compulsorily on the same foot pedal as applies the air brakes, the changeover from regenerative to rheostatic braking taking place automatically at a set speed. There is also one of the Ransome 2-ton electric trucks, specially designed to meet modern requirements, with a low loading line and an elevating platform. They can be supplied with either 4-wheel or 2-wheel steering.

Scammell Lorries Limited. STAND No. 29. The larger vehicles of this firm's make on view are a 12-ton rigid six wheeler and an articulated 15-ton bogie type eight wheeler, the former having a Scammell petrol engine of 40-80 h.p., while the other is fitted with the Gardner 6LW oil engine. In

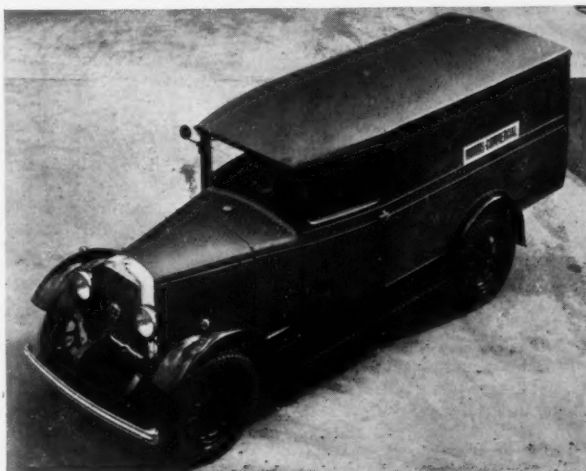
both cases there has been a reduction of weight. Both the 3-ton and the 6-ton types of the Scammell Mechanical Horse are displayed, with various designs of carrier units for use with them, including two with 8.25 x 10 in. tyres, giving a low loading line and having the retractable chassis, enabling the motive unit to be withdrawn on arrival of the vehicle at its destination. The coupling and uncoupling of the unit, including the brake gear, is automatically carried out.

John I. Thornycroft & Co. Ltd. STAND No. 69. Railway work has a direct representative in this display in the shape of one of the G.W.R. 2-ton platform lorries—a chassis type of which many hundreds are in the service of the G.W., L.N.E.R. and Southern railways. There is also a Dandy class 3-ton Luton van, while the Sturdy 5-ton and the Trusty

On the right: The Thornycroft Handy: a type extensively used in railway service



On the left: The Morris Commercial one-ton van which is greatly in favour for collection and delivery work



7-7½-ton types are seen both in chassis form and as complete vehicles. In the various models advantage has been taken of Elektron and other light alloys to keep the chassis weight down to the minimum. In the Dandy chassis is shown the latest four cylinder Thornycroft-Ricardo oil engine developing up to 85 b.h.p. at 2,200 r.p.m. and having the low weight of 19.7 lb. per h.p. Various Thornycroft types can be seen in other parts of the exhibition.

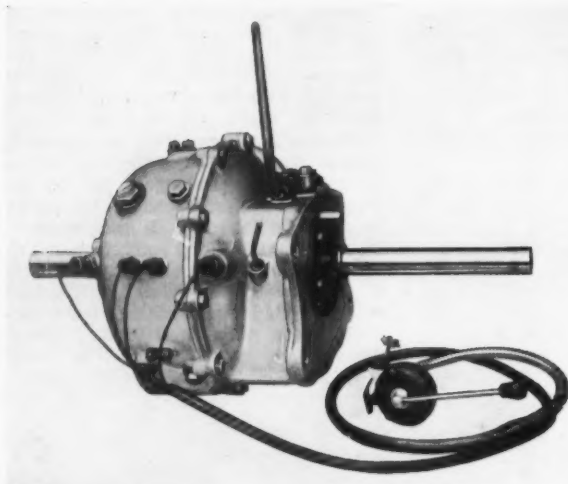
Truck and Tractor Appliance Co. (Manchester) Ltd. STAND No. 62. Of the three vehicles here the Four-in-line semi-trailer is a new model, fitted with oscillating axle and two sets of brakes per axle. The outfit is of the detachable type, and it is shown with a truck body for carrying bricks or tiles. There is also a Dragonfly permanently coupled semi-trailer with a truck body, on a Morris Commercial tractor, the whole having been specially evolved to give an unladen weight of under 3 tons with a load capacity up to 6 tons. A Dragon detachable semi-trailer with a Leyland KZ.4 chassis is specially designed for timber haulage. On stand No. 45 this firm is showing the Cummins diesel engine to develop 83 b.h.p. at 1,800 r.p.m. and the Rock 3-way hydraulic tipping gear.

Walker Brothers (Wigan) Limited. STAND No. 32. Of the two types shown on this stand one is the 6-7 ton Pagefield Pathfinder chassis for trailer work while the other is the Pagefield Prodigy that is being extensively taken up for municipal work. The Pathfinder is powered by the 86 b.h.p. Gardner 5LW oil engine and with forward control it can accommodate a platform body 16 ft. long by 7 ft. 5 in. wide. The gearbox, arranged as a separate

unit, can be fitted with gear ratios to suit the work on which the vehicle is engaged. The Prodigy has a body of sheet steel throughout having a useful capacity of 15 cu. yds. All loading is effected inside the body so that the exterior is not damaged by bins, &c. A loading barrier, adjustable for height, is provided and access to the body is provided by two folding steps.

Engines, Accessories, &c.

Geo. Angus & Co. Ltd. STAND No. 358. Here are being displayed the various brands of Telamite brake and clutch linings in non-metallic and metallic qualities, for commercial chassis work. They are also supplied boxed and drilled, with rivets, ready for fitting to Morris, Ford and Bedford trucks. The brands include Telamite Standard, Telamite Special and Telamite 100, the last-mentioned being a non-metallic lining having a moderate coefficient of friction over a wide range of performance and suitable for certain types of self-energising brakes and plate clutches. Telamite 108 for heavy duty is also non-metallic and has non-score and non-squeak characteristics, and it is supplied only in die-pressed segments. Telamite Z is an economical lining supplied in strips, rolls, or segments. Other specialities of the firm



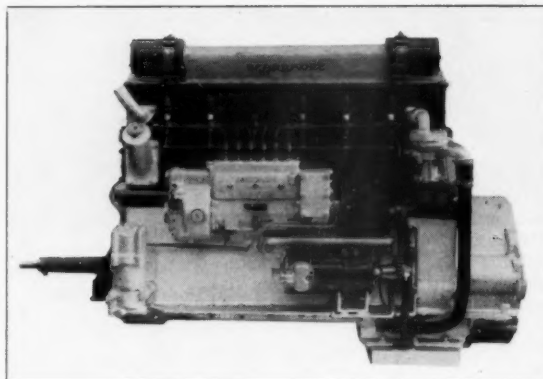
On the left: A view which shows the compactness of the electrically-controlled Cotal gear box and the simplicity of its operated controls

include the Gacos fire extinguishers, Kerbside petrol hose and fittings and Nelite liquid jointing and gasket cement.

Auto-Klean Strainers Limited. STAND No. 266. In addition to a display of the Auto-Klean and Lolos self-cleaning filters for the fuel and lubricating oil of commercial vehicles, there is a new type known as the S series designed for the filtration of high-grade enamels, paints, vegetable oils such as are used for the finishing of bodies, wings, and so on. The liquid is passed through a drum of stainless steel gauze, kept clear by rotating it, section by section, past a collector and simultaneously passing a gentle reverse flow through the gauze. Dross is deposited in a sump so that the machine can be continually operated. In the Lolos range there is a new type for filtering diesel fuel which it is claimed will filter finer than a gauze or fabric medium. There are also the wire wound Lolos cartridges for filtering the lubricating oil of large commercial engines.

Avon India Rubber Co. Ltd. STAND No. 371. For passenger-carrying vehicles there is being shown the Avon air-cooled duo-tread bus balloon tyre with its patented scheme of holes designed to circulate cool air as well as to absorb road shocks. These giant tyres are available in three high pressure sizes and eight low pressure sizes. For goods-carrying vehicles there are the Avon heavy duty giant pneumatics and the Avon straight-side low pressure giants in a full range of sizes. These

On the right: The near side of the Beardmore six cylinder oil engine



Batteries Limited. STAND No. 286. The Nife nickel cadmium alkaline batteries for traction service displayed on this stand are of steel construction and use an alkaline electrolyte. It is claimed for them that as there is no chemical action between the plates and the electrolyte the cells may stand idle for long periods without deterioration while the all-steel construction gives a high degree of robustness and durability. Demonstration cells have been sectioned so that all the details of the

construction may be studied, as well as showing the developments in design and construction that have taken place. The display also includes a range of Nife accumulator handlamps.

Bean Industries Limited. STAND No. 270. An opportunity will be afforded on this stand of investigating the merits of the Cotal transmission, for use on commercial vehicles. The exhibits include a working model complete with controls as well as British-built gearboxes on this system handling maximum input torques of 1,000 lb. ft., 360 lb. ft. and 50 lb. ft., as well as details of other sizes now in course of construction. It may be recalled that in the Cotal system a number of flat discs made of magnetic iron are used to lock and unlock the trains of epicyclic gears, resulting in a very compact gearbox with a control which can be arranged in any convenient position. Cotal gearboxes are now in production for both heavy and light transport for use with engines from 7 h.p. to 145 h.p. The whole of the working parts are lubricated under pressure and the film of oil between the magnetic faces permits a smooth engagement.

Beardmore Diesels Limited. STAND No. 202. The Beardmore commercial vehicle diesel engines are now being made in four and six cylinder types of 28.9 and 43.3 h.p. rating respectively, and examples are being shown as well as one of the six cylinder design sectioned to show the interior design.

Automotive Products Co. Ltd. STAND No. 238. Here is one of the Model DJX Hercano diesel engines together with many components like the Thompson eccentric tie rods, the Purolator oil filter, and Borg and Beck clutches, the merits of which are shown by several machines. The clutch details are also shown separately.

On an adjoining stand the Loughheed Hydraulic Brake Co. Ltd. show the Loughheed master cylinder used in conjunction with the Westinghouse booster, the Clayton Dewandre and Marelli servo systems, as well as a general array of Loughheed standardised productions and complete brake assemblies, as well as the details of them.

These engines are fitted with the Beardmore fuel injection pumps and atomisers and these are being shown separately, together with other components like the speed governor, the crankshaft, the camshaft and water pump. The engines have been designed so that they may be fitted in standard chassis without major alterations and can be supplied with flange to take a gearbox as a unit or for the fitting of a separate gearbox. The performance curves show that the four cylinder engine develops over 65 b.h.p. at 2,200 r.p.m., while the six cylinder engine develops well over 100 b.h.p. at a similar speed.

Beckett, Laycock & Watkinson Limited. STAND No. 337. The Beclawat Typhoon half-drop window has been improved and examples show how it may be used in coaches with sloping pillars and it may also be supplied fitted in an aluminium pan. There are both the old and new styles of the Simoon sliding windows, including one pattern in which the frame is made of rustless steel. The weatherproof window, with its special drainage scheme, is available for coach and garage use. The Beclawat ball race door runners for various purposes are interesting.

Benton & Stone Limited. STAND No. 284. Here the details of the Autolub, Autoram and Flexible grease gun systems for all classes of lubrication can be studied as well as several examples of grouped centralised chassis lubrication. Other exhibits include the Enots hydraulic jack, which enables two tons to be lifted with one hand, the Trioscope driving mirror and the Vibroflex oil and petrol piping with solderless connections, the Enots Easijet now appears with corrugated seams and in a new pint size and the novelty of the Monza Flip-up filler cap for radiators and petrol tanks ensures attention being given to it.

British Thomson-Houston Co. Ltd. STAND No. 339. Among the types of B.T.H. magnetos of the rotating armature, rotating magnet and polar inductor types, there stands out the HE



The B.T.H. type L speed indicating equipment for use on commercial vehicles

design with stationary armature and designed to meet the exacting service conditions on commercial and passenger vehicles. Another new item is the L speed indicating equipment, comprising an a.c. generator unit operating in conjunction with a small high-grade a.c. moving-iron voltmeter scaled in miles per hour. It may be belt or gear-driven. Coil ignition sets, replacement coils, impulse starters, ignition timing devices and Mazda electric bulbs are among the others things in the display.

British Timken Limited. STAND No. 262. A full range of Timken tapered roller bearings comprises all those suitable for use on commercial vehicles, including trailers and from the various disassembled parts it will be possible to see the principles upon which the bearing is designed. From samples of components that have been fractured in tests it is possible to understand the heat treatment which plays such a large part in the life of the bearing. A selection of Timken ball journal bearings is also on view.

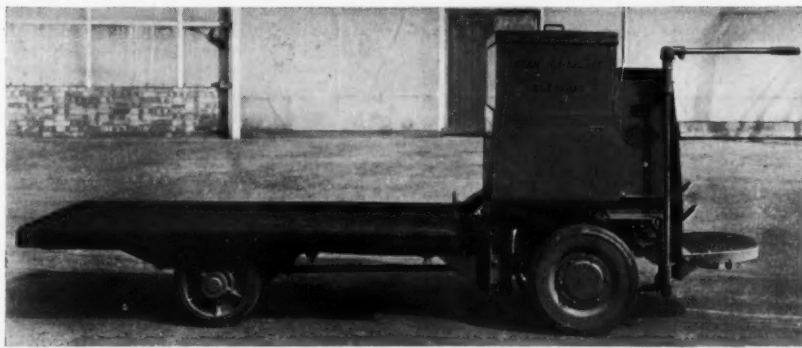
Clayton Dewandre Co. Ltd. STAND No. 260. Here can be seen the various arrangements of the Dewandre vacuum servo brake as well as a number of

schemes with the Dewandre air pressure servo. There are also the Clayton front wheel brakes, the Clayton-Still wire-wound tube radiators, the Clayton heaters, now being installed on so many public service vehicles operating during the winter, the clever Clayton Harris Verometers, the automatic ticket printing and issuing machine, and the Unitype destination indicators.

Dunlop Rubber Co. Ltd. STAND No. 365. Outstanding in this display are the Dunlop giant pneumatics for small diameter rims, of which one size, 13-50-16, is shown while there are also Dunlop giants up to 15-00-20 and the now well-known Dunlop Trakgrip, specially developed for transport over soft ground and snow. It may be noted, too, that the "90" pattern, so predominant in the car range, is now generally adopted for Dunlop giant pneumatic tyres. Great interest is also being taken in the Dunlop low loading tyres for use on municipal and other vehicles where a low loading line is essential.

Glacier Metal Co. Ltd. STAND No. 274. Metal for bearings for many purposes includes the two varieties of Findlay's motor metal. The L.1. for the lining of main and connecting rod bearings of all types of internal combustion engines is a tin-base metal containing 87 per cent. of tin while the H.1. grade is similar but of a harder nature for heavily loaded bearings. There are also being shown bronze, steel and gun-metal backed white metal lined bearings finished to precision limits as well as steel backed bearings lined with lead bronze for heavily loaded engines. There are also die-cast white metal bearings.

Guest, Keen & Nettlefolds Limited. STAND No. 235. Bright steel bolts, nuts, screws and studs to Whitworth and automobile standards turned from the solid bar, as well as every conceivable style of bright turned machine screws with countersunk, round and cheese heads are displayed. Small repetition parts turned to the finest



One of the Lister Ransomes 2-ton electric trucks exhibited by Ransomes

limits, as seen in endless variety in washers, plugs, pins and so on, as well as brake work and bright and black carriage bolts. Other specialities include the Dwarf ratchet braces for garage work and the Eclipse and 4-Bit screwdrivers. Mention should also be made of the self-tapping screws, the hammer drive screws and screw nails.

Hadfields Ltd. STAND No. 207. The display here consists mainly of high grade steels for motor vehicle construction; results of tests showing the characteristics of Hadfields Hecla and Era Motor steels; valves in Hadfields Era H.R. steels; laminated road springs for commercial vehicles; examples of Era C.R. non-corroding steel road studs and blocks; Era C.R. non-corroding steel pressings for radiator bonnets; and Heclon high speed lathe tools.

Hoffmann Manufacturing Co. Ltd. STAND No. 353. The comprehensive range of Hoffmann ball and roller bearings take in many suitable for automobile engineering. The parts on view include many different sizes all guaranteed to be within one-ten-thousandth part of an inch of standard for size and sphericity. Among them will be some no larger than $\frac{1}{8}$ in. in diam., the smallest steel balls ever made and carrying the same guarantee. The steel rollers are similarly guaranteed.

John Holroyd & Co. Ltd. STAND No. 345. There is a working exhibit to show the degree of silence that can be obtained with Holroyd gear. Examples include rear axle worm drives; steering worm gears, screw and nut steering; speedometer gears; camshaft gears; tangential bevel gears; spur and spiral gears and screws. There is shown also the Holfos and Super-Holfos bronze for worms and wheels in spun case cored and solid bars.

I.C.I. (Rexine) Ltd. STAND No. 256. Outstanding is a section of a bus with the interior finished in Rexine to show the various uses of the material and the most suitable effects for specific purposes. The lining panels, garnish rails and bulkhead are panelled in Rexine of a deep brown imitation hide effect and the other parts in matching or contrasting shades. The ceiling is in cream Rexine—known as paint finish.

Laycocks of Sheffield. STAND No. 223. Among several seats for public service vehicles are some with tubular frame and the Laycock registered design grab. They may be upholstered with springs, Dunlopillo or rubberised hair. There is also the Layrub patent propeller shaft which is now being used by many British makers and also the Vortex exhaust silencer. Samples are being shown of machine work, drop stampings and Laymech all-metal couplings.

The Moss Gear Co. Ltd. STAND No. 107. The components displayed here include a rear axle of the spiral bevel type, a four speed gearbox, a front axle for 3-4 ton vehicles, a steer-

ing gear unit, two differential units and a double reduction differential unit, suitable for 40 to 50 seater buses, with spiral bevel and Moss double helical gears. There is a collection of gear wheels of many types on view.

Nobel Chemical Finishes Ltd. STAND No. 9. This exhibit includes every class of finishing material for railway vehicles, buses, trams, vans and lorries. Dulux coach finishes are being used in all parts of the world, and there are the Dulux stoving finishes for seats, grab handles, together with interior and exterior roof paints and enamels, rubbing varnishes for woodwork, adhesives for Rexine leather-cloth and the Deoxidine metal cleaner.

G. D. Peters & Co. Ltd. STAND No. 106. Here is a working exhibit of the Girling-Consolidated power operated drum brake with compressed air operation. The firm make a range of fittings for pneumatic door operation, and a working exhibit demonstrates a four leaf folding door. Seats of several varieties are shown, as well as the N.P. double air springs, the Pronto bell contact moulding and Colt patent ventilators.

Peto and Radford. STAND No. 306. Among the range of heavy duty commercial vehicle accumulators there is a 6-volt, 300 ampere hour battery in section. This is the largest battery made in a 6-volt one piece moulded container and is used on the largest London buses. The range of Peto and Radford accumulators covers all capacities from 51 to 300 ampere hours, and they have the heavy duty plates and double separators.

Pinchin, Johnson & Co. Ltd., STAND No. 44. By panels and parts there is demonstrated the many varied finishes now available. Specimens of Vigorised V5 wet-on-wet spraying process are shown on the back of a coach and there are various panels showing the processes as they are applied. Accelerated air drying and baking processes for brushing, spraying, dipping, flowing and tumbler application are illustrated.

Ransome & Marles Bearing Co. Ltd. STAND No. 333. There are many specimens from the 7,500 sizes of bearings made by this firm and among them are the 48 most frequently adopted bearings in the automobile and allied industries. There are also examples of the most recently adopted types of bearings such as Duplex double purpose bearings, needle roller bearings and roller bearings capable of withstanding end thrust.

Sheepbridge Stokes Centrifugal Castings Co. Ltd. STAND No. 263. Here are the Centricast and Centrard cylinder liners the method of fitting being shown by sectioned cylinder blocks. Centrilock valve seat inserts are likewise shown, together with the special tools provided for preparing the cylinder for their insertion. There is also the Centrit brake drum, combining the advantages of a centrifugally cast c.i. surface with a steel back.

Skefko Ball Bearing Co. Ltd. STAND No. 289. Here are many of the famous S.K.F. bearings, including the deep-groove, single row ball bearings, the taper roller bearings, the single row cylindrical roller bearings, the double row rigid angular contact ball bearings and the double row self-aligning roller bearings. There are also shown S.K.F. ball and roller bearing lineshafter accessories for garage workshops.

J. Stone & Co. Ltd. STAND No. 211. Exhibits are confined to examples of castings, die-castings, forgings and stampings made in various non-ferrous alloys. A particular exhibit is being made of castings and forgings in Ceralumin, the new high tensile aluminium alloy used extensively in aero and diesel engines.

Tecalemit Limited STAND No. 330. Working diagrammatic models illustrate central and automatic lubrication systems and the Tecalemit, Tecazerk, New Hydraulic, Alemite, Dot, Ex-a-gun, systems are shown. Another novel feature is the Lubrostat—a thermostatic oil-valve designed to pre-lubricate cylinder walls. There are also shown a new folding spout, forced feed oil can and the Tecalemit D low pressure fuel pumps.

United Steel Companies Ltd. STAND No. 261. Here are the road springs made by Samuel Fox & Co. Ltd., including several with the Fox patent anchor clip designed for the control of torque reaction. There are also parts showing the use of Fox's Diamet steels. On this stand there are also forgings made by Daniel Doncaster & Sons Ltd., including axle tubes, axle shafts and swivel couplings.

C. C. Wakefield & Co. Ltd. STAND No. 341. Here are many samples of the new range of Patent Castrol engine oils and lubricants and it may be mentioned that the firm distribute lubrication wall charts for a wide range of vehicles including a number of out-of-date models for some of which instruction books may be difficult to secure. Experts are in attendance to discuss lubrication problems with operators.

H. W. Ward & Co. Ltd. STAND No. 205. The exhibit here consists of standard tools, toolholders and accessories suitable for use on all makes of capstan and turret lathes which are extensively used in the production of motor parts and similar work. The firm publish a very comprehensive catalogue which gives detailed information regarding these tools.

Westinghouse Brake & Signal Co. Ltd. STAND No. 102. There are brake equipments here for many different purposes, including compressed air brakes for trolleybuses, an air servo brake for commercial vehicles and an air brake equipment for trailers, including couplings of the Westinghouse type. There are also the Westinghouse metal rectifier chargers for a variety of duties, including that of charging batteries for electric vehicles.

RAILWAY NEWS SECTION

PERSONAL

Mr. Harold William Elliott, who has been appointed Manager of Pickfords Collection and Delivery Service, was born on November 24, 1905, and educated at Brighton College. On leaving school, he spent two years in the works of the Saurer Commercial Vehicle Company at Arbon, Switzerland. He joined the staff of Pick-

1904, and proceeded to the School of Military Engineering, Chatham. In 1906 he worked in the L.S.W.R. shops at Nine Elms and in the running shed at Exeter, proceeding thence to the 8th Railway Company, R.E., at Longmoor Camp, where he remained until October, 1908. In that month he left for Northern Nigeria and was employed as Officer-in-Charge of the Platelaying District on the construction of the Baro-Kano Railway. He returned to R.E.

Tanganyika Railways, and in 1925 took over the control of the Tanganyika Territory Harbours and Marine. In the King's Birthday Honours, recorded in our issue of June 8, 1934, he was awarded the C.M.G.

Mr. Herbert Marriott, C.B.E., M.Inst.T., whose death we recorded last week, joined the Audit office of the Lancashire & Yorkshire Railway in 1883, and after varied experience,



Mr. Harold Elliott,

Appointed Manager of Pickfords Collection and Delivery Service



Col. G. A. P. Maxwell, C.M.G., D.S.O.,

General Manager, Tanganyika Government Railways, Harbours and Marine, 1920-35



The late Mr. Herbert Marriott, C.B.E.,

Chief Goods Manager, L. & Y.R., 1912-21, and Assistant to the General Manager, L.M.S.R., 1923-24

fords Limited in January, 1926, and, after working in the Travel Department and various transport departments, was appointed in 1934 to the control of the Dock and Wharf Cartage Section of Hay's Wharf Cartage Co. Ltd., Stoney Lane, Tooley Street, and also of the Bulk Liquid Haulage Department of Pickfords Limited, at Poplar. In August, 1935, Mr. Elliott took charge, in addition, of Pickfords Collection and Delivery Service, preparatory to removing to the new dépôt at Willow Walk, which was opened on Monday by Sir Josiah Stamp, and is described on page 785. Mr. Elliott is an Associate Member of the Industrial Transport Association.

Col. G. A. P. Maxwell, C.M.G., D.S.O., M.V.O., M.C., has retired from the General Managership of the Tanganyika Government Railways, Harbours and Marine. He was educated at Cheltenham College and the Royal Military Academy, Woolwich, received his commission in the Royal Engineers in July,

duty at Longmoor and Chatham in 1911 and 1912, leaving for the East African Protectorate as Assistant Director of Surveys in June, 1912, which post he held until required by the Colonial Office for the Nigerian Eastern Railway in 1914. Colonel Maxwell then returned to England to take out personnel for this new work, but sailed instead for France on August 9, 1914, as D.A.D.R.T., becoming Assistant Director-General of Transportation in Lord Rawlinson's Fourth Army and Lord Plumer's Second Army. He was mentioned seven times in despatches, was awarded the D.S.O. and M.C., and a Brevet Majority, and also the French and Belgian Croix de Guerre. He is an Officer of the Order of Leopold of Belgium and an Officer of the Legion of Honour of France. He was appointed British Member of the Inter-Allied Railway Commission of Control in occupied Germany, and finally Assistant Inspector-General of Transportation and Deputy Chairman of the Communications Section of the Supreme Economic Council at the Peace Conference at Paris. In July, 1920, Colonel Maxwell became General Manager,

was appointed Assistant Passenger Superintendent in 1896. Three years later when Sir John Aspinall became General Manager, he appointed Mr. Marriott as his Private Secretary. The latter subsequently became Assistant Traffic Manager prior to his appointment as Passenger Superintendent in 1908: it was then that the Manchester School of Signalling was established. In 1910 he was appointed Goods Manager and from 1912 to 1921 was Chief Goods Manager. When the L. & Y. was amalgamated with the L.N.W.R., Mr. Marriott became Assistant to the General Manager, L.N.W.R., and in the subsequent grouping he was appointed to a similar position under the L.M.S.R.: it was from this post that he retired in 1924. Mr. Marriott was Chairman of the Goods Managers' Conference in the first year of the war and served on several war committees in London. He was also Chairman for several years of the Irish and English Conference and was British representative on the League of Nations panel dealing with railway disputes arising out of the Treaty of Peace. At the Second General Conference on Com-

Right: Mr. Donald A. Smith (afterwards Lord Strathcona) driving the last spike of the Canadian Pacific transcontinental line at Craigellachie on November 7, 1885, or exactly 50 years ago. The opening of the C.P.R. from ocean to ocean took place on June 28, 1886 (see also editorial note on page 761 and book review on page 767.)



Back row (standing): Mr. A. F. Wilson (M. & S.M.R.), Khan Sahab M. A. Rashid (G.B.S.R.), Mr. J. Fearfield (Bk. S.R.), Mr. A. Duncan (B.N.R.), Mr. W. H. H. Young (E.I.R.), Rai Sahab G. L. Metha (J. & D.R.), Mr. Cruickshank (B. & N.W.R.), Mr. F. W. Hawkes (N.W.R.).
2nd row (standing): Mr. A. K. Southern (B.N.R.), Mr. Borough Copley (J.S.R.), Mr. H. Lingard (M. & S.M.R.), Mr. Burns (C.P.C.R.), Mr. E. C. J. Gahan (B.N.R.), Mr. K. V. Iyer (M. & S.M.R.), Mr. R. de K. Maynard (M. & S.M.R.), Mr. J. H. F. Raper (G.I.P.R.), Mr. Irvine (C.P.B.R.).
3rd row (standing): Mr. T. H. Morris (B.N.R.), Mr. R. T. Power (Burma Railways), Dr. C. E. R. Norman (S.I.R.), Mr. Phansey (Dh. S.R.), Mr. R. Hannay (B. & N.W.R.), Mr. J. A. Polwhele (B.D.R.), Mr. W. Paton (R. & K.R.), Mr. Laurie (B. & N.W.R.), Mr. G. D. Moore (B.B. & C.I.R.), Mr. Hope (G.L.R.), Mr. Hickif (S.I.R.).
4th row (standing): Rai Sahab Ram Kishan (G.B.S.R.), Mr. J. D. Westwood (B. & N.W.R.), Mr. N. R. Green (Morvi Rly.), Mr. H. R. Mehta (B.S.R.), Mr. H. D. Furley (N.W.R.), Mr. G. E. Cuffe (A.B.R.), Mr. N. D. Calder (E.B.R.), Mr. Anderson (Martin & Co.), Mr. Cordon (M. & S.M.R.), Mr. R. G. Manson (A.B.R.), Mr. H. Carter Norbury (G.I.P.R.).
5th row (seated): Mr. E. L. Manley (E.B.R.), Mr. A. Muirhead (S.I.R.), Mr. H. N. Colam (M. & S.M.R.), Mr. A. C. Venables (E.I.R.), Mr. J. C. Highet (President) (N.W.R.), Mr. L. Wilson (G.I.P.R.), Mr. A. N. J. Harrison (B.B. & C.I.R.), Mr. L. G. W. Hill (B.N.R.), Mr. J. E. M. Rowland (Burma Railways).
Seated on ground: Mr. S. S. Stubbs (I.R.C.A.), Mr. B. Lawrance (I.R.C.A.).

INDIAN RAILWAY CONFERENCE ASSOCIATION, AUTUMN SESSION, 1935

munications and Transit, convened by the League at Geneva in 1923, Mr. Marriott was technical adviser to the British delegate. He was the author of a textbook entitled "The Fixing of Rates and Fares," published by THE RAILWAY GAZETTE in 1910, was Lecturer on Railway Economics at Victoria University, Manchester, and a foundation member of the Institute of Transport. He represented British railways on the International Union of Railways.

AN APPRECIATION FROM AN OLD COLLEAGUE

In the prosperous times before "amalgamation," the Lancashire & Yorkshire Railway was an enterprising line. Its management was always busy with schemes of development, and behind a large number of these plans could be seen the hand of its Goods Manager, Mr. Herbert Marriott. To many railwaymen Manchester has not seemed the same place since he went to London, and the pleasant gatherings which he used to hold at Hunt's Bank came to an end.

Mr. Marriott had been through the mill and knew a lot about every side of railway business. He liked to tell how, after he had worked his way up the ladder, he gave his staff the chance to become proficient in block-working and station accounts. He also spoke with glee of the consternation of the old school of railway officers when he published his little book on rates and charges.

As a guide round Manchester, Mr. Marriott was in his element. After expatiating on the facilities of the Ship Canal and the growth of Trafford Park, he would carry his visitor off to inspect Oldham Road station, and at the end of the tour one almost shared his pride in the city's activities and came away grateful for its generous hospitality.

Perhaps Mr. Marriott rose to the full height of his powers in 1915 when he was Chairman of the Goods Managers' Conference. That was a difficult year with the Railway Executive Committee in constant session, but Mr. Marriott handled many contentious questions with remarkable skill and despatch. He was the "old parliamentary hand" of the Clearing House and a master of its procedure. All of us who sat with him round the board room table at Seymour Street feel that we have lost a true friend and wise counsellor.

ATTENDANCE AT FUNERAL

The following were among the large congregation at the funeral service:—

Messrs. A. Marriott (son), C. Clark (nephew), E. S. Hunt, C. Callard, J. Pike, D. Gee. Also, Messrs. Ashton Davies, Chief Commercial Manager, L.M.S.R.; A. L. Castleman, D.G.M., London, L.M.S.R. (also, representing Institute of Transport); E. E. Painter, Secretary, Railway Clearing House; C. J. Selway (representing Sir R. Wedgwood, Chief General Manager, L.N.E.R.); H. E. Roberts, Dist. Passenger Manager, London, L.M.S.R.; L. C. Brittlebank, Asst. D.G.M., London, L.M.S.R.; H. W. Phillips, Asst. to Chief Commercial Manager, L.M.S.R.; S. T. Jones (representing Mr. O. Glynn Roberts, Secretary, L.M.S.R.); H. Hautwell, Dist. Goods and Passenger Manager, Northampton, L.M.S.R.; G. H. Nutter (representing Mr. H. G. Humphreys, Manchester, L.M.S.R.); C. Devey, Asst. Dist. Goods Manager, Manchester, L.M.S.R.; F. H. Cowell, Dist. Passenger

Manager, Manchester, L.M.S.R.; W. A. Jepson, late Asst. to General Manager, former L.N.W.R.; W. A. Thomas, late Dist. Goods Manager, Wolverhampton, L.M.S.R. (and representing Retired Railway Officers' Society); H. J. Guest, late L.M.S.R.; J. R. Ball, late Chief Estate Agent, L.M.S.R.; A. Wilson, late Divl. Genl. Manager, L.N.E.R.; W. B. Worthington, late Chief Engineer, former Midland Railway; H. Ferrett; W. H. Wood; E. Collis; W. H. Bell, Secretary, Leeds & Liverpool Canal Company; Robt. Davidson, General Manager, Leeds & Liverpool Canal Company; J. R. Broadbent (representing Directors and Officials of Canal Transport); B. E. Walls (representing Staff of Canal Transport); F. J. Cleal, Lloyds Bank, Watford; Major D. M. Nelson (representing Grand Council of the Primrose League); Alderman J. Evans (former Mayor of Watford); Canon W. H. Littlebury; Alderman and Mrs. G. Timberlake; Messrs. T. A. W. Blackwell (representing Watford Div. Conservative Association); J. H. Neighbour (representing Watford Branch, Primrose League); S. Jearrad, West Herts Golf Club; Mr. and Mrs. P. J. Joyce; Mr. and Mrs. A. D. Hicks; Miss Ball; Miss Payton; Miss Arnold; Mrs. E. Wells; Lady Herbert; Mrs. Green (representing Bushey and Oxhey Branch Primrose League); Miss Bracey; Miss Bennett; Mrs. J. D. Brown; Mrs. Simmons; Mrs. Hillier; Mrs. A. A. Tupman; Miss Bristow; Mrs. R. C. Owen; Mrs. W. Truslove; Mrs. E. Richardson; Mr. R. F. Cleeve; and Mr. A. F. H. Stephens (representing Charles Roberts & Co. Ltd.)

G.W.R. APPOINTMENTS

The Great Western Railway announces the following appointments:—

Mr. C. H. Whitelegge, Parliamentary and General Assistant, Solicitor's Office, Paddington, to be General Assistant and Parliamentary Agent in that office.

Mr. G. Stephens, Assistant Chief of Police, Paddington, to be Chief of Police, upon the retirement on January 4, 1936, of Mr. J. H. Matthews, the present holder of that office.

Mr. A. H. Gilling has been appointed General Manager of R. Y. Pickering & Co. Ltd., Wishaw. Mr. Gilling has had a varied home and foreign experience, and was for many years with the Yorkshire Engine Co. Ltd.

It is with regret that we learn of the death, on November 4, of Sir Mark Webster Jenkinson, a Director of Vickers Limited and Vickers Armstrongs Limited, of the English Steel Corporation Limited and of other well-known concerns. A chartered accountant prizeman, Sir Mark was Controller of Factory Audit and Costs, Ministry of Munitions during the war, and afterwards War Chief Liquidator of Contracts at that Ministry, and was awarded the C.B.E. in 1918, and K.B.E. in 1926. He was also Chairman of Cooke, Troughton & Sims, the great mathematical instrument makers, whose products are used by British engineers throughout the world.

INDIAN RAILWAY STAFF CHANGES

Mr. J. A. Smith, Locomotive Superintendent, B. & N.W. and R. & K. Railways, returned from leave and resumed duty on October 9.

Mr. P. H. Yeld has been appointed to officiate as Deputy Traffic Manager (Transportation) E.B.R., as from September 16.

Mr. W. O. Chalk has been appointed to officiate as Chief Mechanical Engineer, N.W.R., as from September 6.

Mr. H. H. Cooper has been appointed to officiate as Superintendent, Mechanical Workshops, N.W.R., as from September 6.

Mr. C. I. Hutton, Locomotive and Carriage Superintendent, Burma Railways—who meanwhile occupies a similar position on H.E.H. the Nizam's State Railway—has been permitted to retire from the service of the Government of India as from September 16.

Mr. V. O. Raynor, Officiating Deputy Chief Operating Superintendent, N.W.R., has been granted one year's leave as from October 30.

Mr. T. F. Cameron, Assistant to the Superintendent (Staff), North Eastern Area, L.N.E.R., has been appointed Assistant to the Divisional General Manager, North Eastern Area, in succession to Mr. F. H. Graveson who will retire from the service under the age limit on November 11.

L.M.S.R. APPOINTMENTS

The following appointments have been approved by the Directors:—

Chief Commercial Manager's Department

Mr. C. T. T. M. S. Tregurtha, Assistant to Advertising and Publicity Officer, Euston, to be Assistant Advertising and Publicity Officer, Euston.

Mr. E. Cheadle, Chief Clerk, Advertising and Publicity Section, C.C.M.O., to be Assistant to Advertising and Publicity Officer for District and Resort Contact, Euston.

Chief Operating Manager's Department

Mr. F. Sutton, Assistant District Controller, Workington, to be Assistant District Controller, Birmingham.

Mr. H. A. Turner, District Horse Superintendent, Manchester, to be District Veterinary and Horse Superintendent, London (Camden).

Mr. A. H. Udall, District Horse Superintendent, London (Camden), to be District Horse Superintendent, Manchester.

Scottish Changes

Mr. T. Shanks, General Assistant and Chief Staff Clerk, Commercial Manager's office, Glasgow, to be Assistant to Commercial Manager (Goods), Glasgow.

Mr. G. Phillips, Running Shed Foreman, Corkerhill, to be District Locomotive Foreman, Ayr.

Sir William Lingard Goulding, Bt., late Chairman of the Great Northern Railway (Ireland), whose death we announced in THE RAILWAY GAZETTE of June 28, left estate valued at £38,829.

Following the resignation of Count Hayashi from the presidency of the South Manchuria Railway, already reported, Mr. Yoshiaki Hatta also has now resigned from the vice-presidency. It is expected that in the future there will be two vice-presidents one for railways and the other for subsidiary undertakings.

Retired Railway Officers' Society Luncheon

The half-yearly luncheon of the Retired Railway Officers' Society was held at the Abercorn Rooms, London, on Tuesday, with Mr. W. F. Pettigrew, M.Inst.C.E., M.I.Mech.E. (President) in the chair. Among those at the chairman's table were Sir Follett Holt, K.B.E., M.Inst.C.E., Chairman, Buenos Ayres Great Southern Railway Company, &c., Mr. H. N. Gresley, C.B.E., M.I.Mech.E., and Sir David J. Owen, M.Inst.T. (Port of London Authority). Other members and guests present were:—

Messrs. T. E. Argile, A. W. Arthurlton, J. Ballantyne, F. G. Barriball, A. R. Bell, W. Bishop, F. S. Bond, W. E. Bradbury, W. P. Bradbury, J. F. Bradford, M. H. Brady, A. J. Brickwell, J. Brittlebank, J. F. Brook, A. H. Bull, H. J. Burcham, H. R. Campfield, A. L. Castleman, R. F. C. Castleman, T. Christopher, Major A. Clear; Messrs. E. A. Clear, G. Clear, G. Cope, C. T. Cox, W. O. Davies, G. Cole Deacon, F. W. Dingley, A. E. Dolden, P. J. Dowsett, H. W. C. Drewry, W. D. Duffield, A. F. Dymont, H. W. Ede, H. Ferguson, Major G. N. Ford; Messrs. C. A. Everard Greene, H. N. Gresley, R. O. Griffiths, H. J. Guest, P. L. Guest, T. E. W. Guest, E. B. Hassall, E. L. Hawkins, G. T. Hedge, Sir Follett Holt, K.B.E.; Messrs. H. E. Horne, G. Hughes, W. Humphreys, W. H. Hyde, T. W. Jacobs, W. E. James, W. A. Jepson, S. F. Johnson, D. R. Lamb, F. W. Lampitt, J. Lee, J. Lees, J. W. Lovejoy, T. E. Lovell, Dr. MacMahon; Messrs. A. Maynard, D. McCullough, Lt.-Col. P. D. Michod; Messrs. J. Miller, A. S. Mills, John C. Mitchell, A. Moore, C. W. Neele, A. Newlands, C. H. Newton, R. H. Nicholls, C.B.E., Sir David J. Owen; Cdr. F. J. Paice; Messrs. A. P. Parker, C. Parker, C. P. Parker, L. P. Parker, G. H. Pearson, W. F. Pettigrew, C. Phizackerley, J. Pike, E. Prebble, A. Puleston, H. Roberts, S. Roberts, J. B. Rogers, A. P. Ross, J. Rough-ton, L. F. Rowlandson, H. J. Rudgard, F. Ruffell, F. A. Sargent, W. A. Sargent, J. Sayers, C. J. Selway, G. G. Senior, T. H. Shipley, Rev. Canon H. Skelton; Messrs. J. Procter Smith, S. V. Smith, T. Smith, D. Spooner, E. A. Stayzer, M. C. Tait, A. Tatlow, E. Taylor, W. A. Thomas, H. L. Thornhill, W. E. Thornhill, G. F. Thurston, F. W. Tipton, A. Twist, F. W. Tyler, W. T. Venton, A. Walker, G. J. Walker, J. Wardle, E. Wharton, P. Wharton, H. Wheeler, J. Williams, J. S. Wilson, W. Wood, A. Wood-Hill, W. Yates.

Mr. W. F. Pettigrew proposed the toasts of the King, and of the Duke of Gloucester and Lady Alice Scott, referring to the services of Lady Alice's father, the late Duke of Buccleuch, as Deputy Chairman and Chairman of the former North British Railway. Mr. Pettigrew then proposed "Our Guests," and extended the welcome of the society to Sir Follett Holt, who was well known to members for his wonderful work in South America. They also had as their guests Mr. H. N. Gresley, who needed no better introduction than his own *Silver Link* engine and *Silver Jubilee* train, Sir David Owen of the Port of London Authority, and Mr. W. Bishop of the Southern Railway, for which company he had performed remarkable work. Mr. Pettigrew coupled with the toast the name of Sir Follett Holt.

Sir Follett Holt, replying to the toast of "The Guests," said he considered it a very great honour to have been invited by the Chairman to attend the luncheon. He looked upon the invita-

tion as a good conduct prize, for Mr. Pettigrew had been his chief a very great number of years ago, at which time he was the possessor of brown, curly hair and a penetrating eye. If the curliness of the hair was less in evidence today, the penetration of the eye remained, and recalled to Sir Follett the devices to which he had been put to avoid it when a young man under Mr. Pettigrew in the shops of the L.S.W.R. Mr. Pettigrew's régime at Nine Elms marked a period of development in locomotive design just as there is such marked development under Mr. Gresley and other eminent leaders at the present time. The same period saw the appearance of the first British bogie coach, and that vehicle was, incidentally, the first coach of the L.S.W.R. to be painted green.

Sir Follett Holt then referred to the building of British railways in Argentina, where 16,500 miles had been constructed, representing a capital investment of £275,000,000. He had enjoyed the thrilling experience of seeing towns and villages grow up as the railway lines progressed. For some forty years they had been serving a total population little larger than that which came within the area of the London Passenger Transport Board. Those had been good days for the railways, but unfortunately the conditions had now greatly deteriorated, and returns upon the money invested in railway development were very disappointing. The companies, however, were struggling along, and misfortune had at last been an incentive to experiment. Trials had been made with diesel traction, and apart from the inherent value of such endeavours, they had acted as a spur to the initiative of steam locomotive designers.

As a railway chairman, it was his duty to study balance sheets, a branch of investigation sometimes scorned by members of the engineering profession. The study of figures showed, however, that 25 or 30 per cent. of Argentine railway revenues were now being lost to the roads. Sir Follett recalled dining one day at the Institution of Civil Engineers and being asked whether he did not regret that he had not been an engineer himself. He enlightened his companion as to his early engineering training, and received the reply, "Oh! I thought you were only a financier." It was known to all connected with railways that they possessed all kinds of assets which were not having the opportunity to earn a fair return, and the present problem was to see how these could be made to do so, or how the balance sheets could be adjusted to exhibit in the words of the auditors "a true and correct view of the state of affairs."

Sir David J. Owen, M.Inst. T. (Port of London Authority), proposing "Success to the Retired Railway

Officers' Society," paid a tribute to the late Mr. H. Marriott, by whom he had been invited to attend. Referring to his long association with railway officials—mainly in matters upon which they held divergent views—Sir David said he was sure that it would be conducive to a more harmonious understanding between railways and outside interests if officers still in service were allowed to join the society for short periods and acquire the calm and contemplative outlook upon affairs which flourished there. The Port of London Authority was by statute a railway authority, and he himself might before long be seeking admission to the society, for which he had formed a very warm regard.

Mr. H. N. Gresley, seconding the toast, also referred to his long acquaintance with Mr. Marriott, whose kindness he would never forget. Some points in Sir Follett Holt's speech called for remark. He had mentioned the *Silver Jubilee*, and he (Mr. Gresley) had been intrigued by the announcement in the press that *Silver Link* was to draw the Royal honeymoon train from St. Pancras to Kettering on Wednesday. As to balance sheets, he considered the best solution to all financial problems was a general election, when enormous sums were offered to the country by the Government.

Mr. E. A. Clear responded. Having expressed his gratitude for the compliments paid to the society by preceding speakers, he could not, he said, conclude without reference to the death of Mr. Marriott, which had been felt very deeply as the loss of an old and greatly beloved friend.

Mr. R. H. Nicholls, proposing "The President," described Mr. Pettigrew as one of the greatest of English gentlemen, and was thankful he had lived long enough to have met him.

Mr. J. F. Bradford seconded, and endorsed Mr. Clear's tribute to the personality of Mr. Marriott, the news of whose death had come as a great shock to him when he read it in *THE RAILWAY GAZETTE*. Of Mr. Pettigrew, he said that although he had not had much to do with him in his official capacity, he looked back with great pleasure upon his association with him during his term as President.

Mr. Pettigrew, having acknowledged the toast, said he was glad that the views of retired railway officers still carried weight, for certain remarks of his own at the last luncheon regarding the improvement of goods services seemed from subsequent happenings to have been taken seriously.

Ebbw Vale Steel Works.—As the result of negotiations which have been proceeding for some months, a tentative agreement has been reached for the acquisition by Richard Thomas & Co. Ltd. of the Ebbw Vale Steel Works, and the taking over of the Lancaster Steam Collieries and the iron ore property of the Ebbw Vale Company in Northamptonshire.

Luncheon to Mr. G. E. Chittenden

A farewell lunch in honour of Mr. G. E. Chittenden, Director of Publicity, South Africa House, during the last ten years, was held at Gatti's Restaurant, Strand, on Tuesday. Mr. J. McLean, Chairman of the South African Section of the London Chamber of Commerce, presided over a representative gathering and was supported by:—

Mr. G. W. Klerck, Official Secretary, South Africa House; Mr. B. F. Wright, Official Secretary, Rhodesia House; Major C. H. Dale, O.B.E., Commissioner, H.M. Eastern African Dependencies Office; Mr. Robertson F. Gibb, Chairman, Union Castle Mail S.S. Company; Mr. F. J. du Toit, Union Trade Commissioner; Major J. Corbet Ward, O.B.E., Secretary, H.M. Eastern African Dependencies Office; Mr. W. Lints Smith, Manager of *The Times*; Mr. P. G. Reyneke, who succeeds Mr. Chittenden as Director of Publicity; Colonel H. Greenwood, V.C.; Mr. Harold R. Mosenthal, and Mr. J. H. Diamond.

The company also included:—

Messrs. W. R. Burns, *South Africa*; Guy Crowright, S.A. Morning Newspapers; D. D. Chappell, *The Morning Post*; C. F. Dashper, Union Castle Mail Steamship Company; E. D. Eastaway, Union Castle Company; E. Eglington, *British and South African Export Gazette*; Captain Graham Gibb, Bullard, King & Co.; C. Given, London Office of Empire Exhibition; Neil F. Grant, London Editor, S.A. Morning Newspapers; A. C. Grandison, Union Castle Mail Steamship Company; J. A. Gray, Editor of *South Africa*; B. W. Harlow, Overseas Representative, S.A. Co-operative Citrus Exchange; W. A. Horrocks, Assistant Union Trade Commissioner; E. Hopkinson, Advertisement Manager, *The Times*; G. A. Jenkin, Chief Clerk, South Africa House; H. L. Kay, Publicity and Travel Bureau, South Africa House; J. A. Kay, Editor, *THE RAILWAY GAZETTE*; N. K. Kerney, London Editor, *Argus S.A. Newspapers*; Percy A. Leon, Parry, Leon & Hayhoe; R. Laing, Assistant Manager, Union Castle Mail Steamship Company; W. London, Union Castle Mail Steamship Company; S. Long, G. Street and Company; W. McHardy, O.B.E., Kenya & Uganda Railways; W. M. Macphail, J. A. Ewing & Co.; A. S. Mitchell, *The Daily Telegraph*; J. J. Murray, Secretary, Union Castle Golf Club; W. C. Naude, South Africa House; W. A. Penton, Bullard, King & Co.; C. Sperrin Palmer, Cape Town; A. T. Penman, Reuters Limited; C. Pollard, *Cape Times*; C. H. Richardson, South Africa House; Joseph Robinson, Union Castle Mail Steamship Company; P. Russell, *African World*; E. C. Rothkugel, *British and South African Export Gazette*; A. H. Robson, Union Castle Mail Steamship Company; C. J. Saywell, *Argus S.A. Newspapers*; L. C. Stokes, South Africa House; F. W. Sarginson, Manager, *Argus S.A. Newspapers*; K. Stonehouse, S.A. Morning Newspapers; B. O. Schonegevel; C. van den Bosch, German African Lines; P. G. R. Wright, Adams Brothers & Shardlow.

The chairman said they were all very glad to have that special opportunity of paying tribute to Mr. Chittenden and to the work which he had done. Unfortunately, the High Commissioner for the Union was unable to be present, but he desired to be associated with that expression of good will to their guest. Mr. te Water, in a message stated: "No one at your luncheon will miss Mr. Chittenden more than I shall, for no one, in the nature of things, has had to lean more heavily upon his loyalty and experience than I have done during the six years of my association with him. And no one, who has not my intimate knowledge of his many admirable qualities, can be more

certain of the success which awaits him in his future career at home. We shall all lose a friend and a fine companion when he leaves us next week."

Mr. Robertson Gibb, proposing Mr. Chittenden's health, said that as Mr. Chittenden's job was publicity, and as publicity was the life-blood, in a way, of shipping companies, and his publicity had to do with South Africa, and as there was really only one shipping company by which they could go to and from South Africa, it was appropriate therefore that he should propose that toast. Ten years ago Mr. Chittenden came to London, and during those years he had been engaged in the work of presenting South Africa, its beauties and other attractions, to the general public. He had done that job remarkably well. He was quite sure he was not exaggerating when he said there was no Dominion that had had its publicity work done in a more efficient manner. Speaking personally, he had always got on very well with Mr. Chittenden. If Mr. Chittenden would like to perform a parting service, as really it was a case of sanctions, he could remove the model of Julius Caesar from the prominent position it occupied in South Africa. One of Mr. Chittenden's slogan's was "spiritual values in travel," a very fine expression. Now that he was going to have a good deal to do with the catering arrangements on the South African Railways, perhaps he would modify the slogan to "spirituous values!" If Mr. Chittenden brought to bear on his new duties the same qualities of enthusiasm, personality and charm as he had displayed in his publicity work, he was quite sure he would be highly successful in his new position.

Mr. Chittenden was also a thorough good sportsman, and that went a long way in life. In welcoming his successor, Mr. Gibb said that Mr. Reyneke had a very difficult task in following Mr. Chittenden, but he was sure he would get all the encouragement and help it was possible for them to give him, and he wished him well in his new duties. On their behalf he wished to express to Mr. Chittenden their grateful thanks for all the excellent service he had rendered to them and to the great Dominion whose interests he served, and he wished him in their name every happiness, success and prosperity in the discharge of the new duties he was about to undertake.

Mr. Gibb concluded by presenting to Mr. Chittenden a copy of Lawrence of Arabia's book, "The Seven Pillars of Wisdom," autographed by all present.

Mr. Chittenden, in acknowledging the toast and the gift, said he wished to express how deeply honoured he felt on that occasion, and how much he appreciated the compliment that had been paid to him. Such a demonstration of goodwill was a high reward to a public servant for any service he had

rendered. Referring to Mr. te Water's message, he said that the High Commissioner had been an inspiring leader, and it was fitting that the new South Africa House which had risen from the ashes of Morley's Hotel should be the symbol of his work. In thanking Mr. Robertson Gibb for what he had said, Mr. Chittenden said he had seen a good deal of Mr. Gibb, who had probably classed him both as an iconoclast and an importunist, advising the scrapping of old ships, and the building of new and faster ships, with swimming baths, gymnasias, and "pictures." He was glad to think those ships were coming.

The ten years he had spent at South Africa House had seen the development of tourist traffic to South Africa from 5,000 to 10,000 per annum, and in this and other ways the developments in shipping were being justified. As far as South Africa was concerned, the time seemed propitious for even fuller development of this tourist business. Next year they had the Empire Exhibition at Johannesburg, which would attract people from all parts of the world, and he hoped that next year they would break all records in this respect. He was pleased to welcome Mr. Reyneke as his successor. Mr. Reyneke had had previous experience of London, and actually opened the Travel Bureau at South Africa House. He was known to him as a colleague of long standing, and he could recommend him as a tireless official and a good sportsman.

Mr. George Klerck, proposing the toast of "The Chairman," congratulated Mr. McLean on his election to the position of Chairman of the South African Section of the London Chamber of Commerce, and said he took with him their good wishes in the execution of his onerous duties. Seeing the charming and dignified way in which he had conducted that function, he was perfectly certain Mr. McLean would discharge his higher duties with equal success.

The Chairman, in acknowledging the toast, expressed the good wishes of the Chamber of Commerce to Mr. Chittenden on his new appointment.

Canal Transport.—In the course of a letter to the Editor of *The Times* on the subject of improvements which have been effected in canal transport since the war, Mr. Henry J. Spooner writes: "Happily, some two years ago, the Canal Association and the railway companies entered into an agreement (dated June 28, 1933) providing for co-ordination and co-operation between the railways (owners of canals) and independently owned canals, owning together about 1,000 miles of canals. This epoch-making agreement will, it is to be hoped, lead to such developments of our waterways as will greatly relieve our roads of much of the heavy day and night traffic that is such a danger to life and to the stability of nearby buildings, particularly ancient ones, to say nothing about the ill-effects of the distressing noise it produces."

Internal Airways

A review of progress in Great Britain during the past summer

(See also editorial article on page 765)

The last nine months, like the summer of 1934, have seen a number of experiments in the operation of internal airways in this country. Some have met with comparative success; others have been obvious failures. Railway Air Services Limited, for the most part, has been content to consolidate its position with a number of improvements and extensions to existing services. Its planes, however, have now completed over 500,000 flying miles while employed in operating over regular service routes.

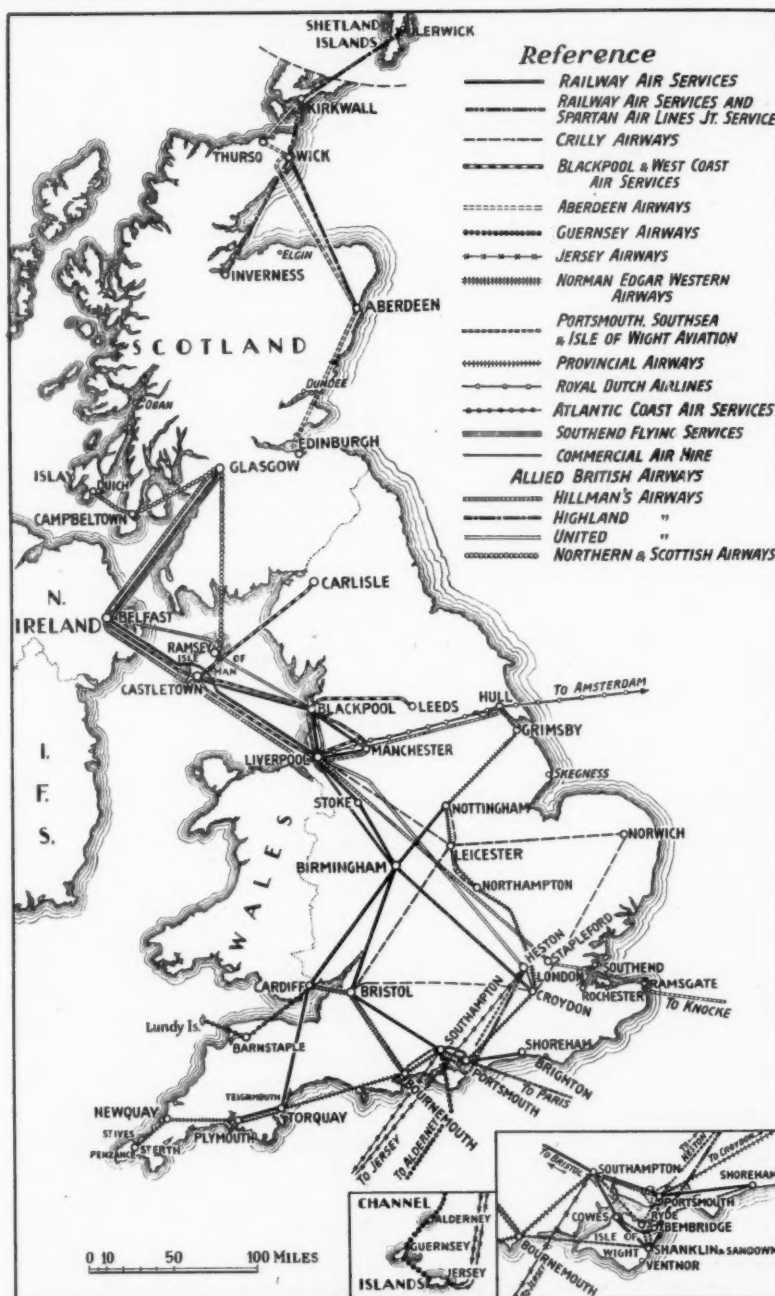
The R.A.S. "main line," if it may be so called, is the London-Birmingham-Stoke-Liverpool-Belfast-Glasgow service. It has been maintained regularly all the year round since its inception in August, 1934. In August of this year Stoke was substituted for Manchester as a port of call. Manchester is now linked with the other R.A.S. routes by the new Manx Airway, inaugurated this summer and now being retained during the winter. The winter routing of the R.A.S. Manx Airway is Manchester-Liverpool-Blackpool-Isle of Man, but, as our map shows, during the summer months there is also a direct service between Manchester and Blackpool. The only other R.A.S. service to work during the winter is that between London (Heston), Bembridge, and Cowes. This is worked jointly with Spartan Air Lines Limited, which supplies the necessary planes. The original 1933 G.W.R. Birmingham-Cardiff-Torquay-Teignmouth-Plymouth route was reopened during the summer months, and an extension was made across to Nottingham. The Liverpool-Birmingham-Bristol-Southampton-Isle of Wight summer service of 1934 was also introduced again with certain modifications. A regular and frequent Southampton-Cowes-Sandown air ferry was inaugurated, and the planes from Liverpool via Birmingham and Bristol were diverted, after calling at Southampton, along the coast to Portsmouth and Shoreham (for Brighton and Worthing). An interesting innovation made late in the season was a day excursion from Shoreham on Sundays to Le Touquet.

Among the independent operators, as already recorded in THE RAILWAY GAZETTE, there is at present being negotiated a merger between Hillmans Airways Limited, Highland Airways Limited, United Airways Limited, Northern & Scottish Airways Limited, and Spartan Air Lines Limited. The formation of the new company, to be known as Allied British Airways Limited, may have some interesting consequences through the amalgamation of both railway competitive and railway co-operative services. The services of Hillmans Airways Limited and

United Airways Limited, for example, are in direct competition with existing railway-operated air lines, while the only service provided by Spartan Air Lines Limited is that, operated jointly with R.A.S., between Heston and the

Isle of Wight. Moreover, support for the Allied British Airways scheme is forthcoming from Whitehall Securities Limited, which is associated with the Great Western and Southern Railways in the ownership of Channel Islands Airways Limited, the concern controlling Jersey Airways Limited.

Among the other independent operators there has been, and doubtless will continue to be, much coming and going. Our map purports to show the 1935 summer services; many of these are discontinued for the winter.



Sketch map of the internal air lines worked in Great Britain during the past summer

Pickfords New Collection and Delivery Service Depot

Formal inauguration by Sir Josiah Stamp on Monday of the new headquarters at Willow Walk, Bermondsey, for Pickfords Suburban Goods Service

The new sorting depot and headquarters for its Suburban Goods Service which Pickfords Limited has recently established on Southern Railway property at Willow Walk, Bermondsey, was formally opened on Monday by Sir Josiah Stamp, Chairman of Pickfords Limited, and Chairman and President of the Executive, L.M.S.R. This depot is described and illustrated on pages 784-787.

After a large party of visitors, including Mr. E. B. Fielden, Sir James Milne, Sir Herbert Walker, and Sir Ralph Wedgwood, and a number of chief officers of the four main-line railways had been afforded an opportunity of viewing the depot, the party assembled in the canteen where Sir Josiah said:—

"In inviting you to see this depot our feeling is that it is but another link in a long story of historical development, for, in the history of transport Pickfords is a name that no historian would dare to omit. From the time of Charles I, Pickfords have been engaged in transport. In the absence of roads they used chains of pack horses, each of which carried up to 700 lb. in panniers. With the development of roads Pickfords used wagons, and their main service was between London and Manchester. In 1777 they even advertised that the journey would be completed in 4½ days by a service running twice weekly. In 1809 they increased this to a daily service which left the White Bear Inn, Basinghall Street, every afternoon at four o'clock (Sundays excepted). In an advertisement of the latter date, they stated:

Nor will any animal be paid for, though hurt or killed on the journey by accident or otherwise, such things being perquisites of the drivers."

"In times of war the firm's horses were in demand. One of the early heads of the business mounted a troop in a skirmish between the Cavaliers and Roundheads. In 1803 the *Sun* newspaper referred to the firm's patriotic offer of '400 horses, 50 wagons, and 28 boats to be employed as the government shall think fit' in the Napoleonic wars. The development of canals provided fresh opportunity for the development of Pickfords, who not only instituted a regular system of canal boats, but also arranged for canal head distribution by vehicles which met the boats at given points. The advent of the railways provided still further scope for development and in 1830 Pickfords proposed to the Liverpool and Manchester Railway that there should be wagons 'to have a movable body to be transferred to car wheels at each end of the line.' This was the forerunner of the rail container system and was operated as part

of the Pickfords collection and delivery service, whose main depot is now at Willow Walk.

"Thus there have been three centuries of development and a history which might be described as the history of transport in this country. Throughout this time, first with pack horses then with wagons and horse vehicles (not to mention their canal boats) and later with motor vehicles, Pickfords have been carrying on their collection and delivery services, not only in London but in a very large number of towns covering the entire country. Pickfords had occupied their depot at Long Lane, Bermondsey, for 69 years. In the course of time, with the change over from horses to motors and the expansion of the business, the old depot had become a patchwork of buildings and banks wholly unsuited to modern requirements. Quite apart from the expansion of the business there has been a gradual change in the requirements of customers. In the past, a large proportion of collections and deliveries were in bulk, and passed straight from the place of collection to the place of delivery, without intermediate handling. There is, however, a growing tendency to reduce the size of consignments due, presumably, to the distributor's or retailer's desire to keep his stocks as low as possible.

"These smaller consignments cannot be dealt with economically except by intermediate handling by way of sorting, and as a result an increasing proportion of traffic has to pass through the depot. It may be mentioned that in the last year the number of packages dealt with per month increased on an average by no less than 76,000. This great increase accentuated the congestion which was bound to be caused by the layout of the old depot. As a result traffic could not be handled as expeditiously as all our customers would wish, or as economically as it should be. Thus, any increase in traffic produced complaints and could only be dealt with at a loss.

"The new depot at Willow Walk is laid out on the most modern lines. There is ample room for as many as 143 motors to load simultaneously. The bank space is so arranged that sorting is carried out as quickly as possible. As a result, the morning delivery already leaves the depot 70 minutes earlier than at the former depot and the customer gains an equal amount of time. It is hoped that improvements in the system will produce even more expeditious handling. The storage accommodation at the new depot is on the first floor and is also of the most modern type. To facilitate the work the floor space is marked off

in numbered sections and goods are carried up or down in lifts or conveyors.

"The desire of the main-line railways, when they became interested in Pickfords, was to maintain all the great traditions of the business and to add their own strength and experience to its development. Accordingly they have not stinted the introduction of new capital for bringing the whole equipment up-to-date in every way, and to keep Pickfords at the very head of the road transport industry. The most obvious characteristic of the development of transport in recent years, with its strong trend to rapid delivery at frequent intervals, is the development of terminal facilities and exchange. This may be called the science of co-ordinated functional location. It is no good securing material reduction in the time of motion upon the highways or the railways if, at the points of exchange and redistribution, long periods are spent when nothing is happening to the consignments. The whole question, therefore, of points of transfer, arranged in the most convenient way for modern requirements, is undergoing radical change, and we believe that the arrangements made here are the most advanced of their kind for rapid action. We are aware that we are endeavouring to set new standards, by which we shall soon be judged, rather than for which we are likely to be thanked, but this is the aspect of public service which animates us."

Netherlands Tramways & Motor Services Association.

—At the annual meeting of this association, held at Arnhem on September 27, the Chairman, Dr. J. G. Nieuwenhuis, remarked in his address on the very difficult times through which many of the members were passing, due in great measure to the prevalence of an uninstructed public opinion, which was hostile to the tramway and light railway undertakings because it did not understand the true position of affairs and had consequently no inclination to see a fair chance granted to them. Dr. Nieuwenhuis felt compelled to protest against the irresponsible statements made against the tramway companies, and the one-sided attacks of interested parties who, for their own ends, wished to see the tramways go under and the chaotic competition between road vehicles, which has already done great economic harm to the community in general for the financial benefit of a few, more and more extended. The association was not, he said, wedded to one form of transport, for motor services were being run by several of its members, but it desired to see the question approached on the basis of facts and an end put to the wasteful state of affairs now prevailing, under which large capital sums have been thrown away. In addition, it was essential that the tramway concerns should be relieved of burdens imposed on them by law before road motor vehicles appeared.

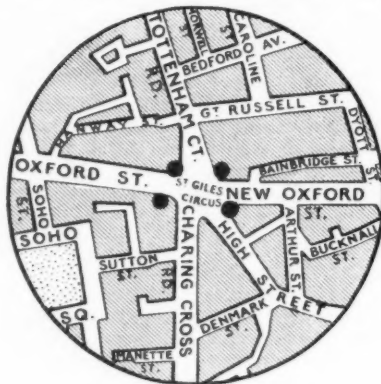
A New London Underground Map

The London Passenger Transport Board inherited from the old "Underground" railway group a high and longstanding reputation for fine, clear public maps. This has been fully maintained by the London Transport authorities, and both the seasoned Metropolitan traveller and his country cousin have reason to be grateful for the clarity of the productions issued under the board's auspices.

Now London Transport has just published a completely new type of map of the underground railway system serving the Central Area. The map is new in purpose as well as form. In place of the customary "dots" to indicate the position of the stations are small maps for each individual station in the form of circles some three inches in diameter, showing the streets adjacent to the station and the position in these streets of the station entrances. The latter information has not been given on any previous maps so far as we know. Separate colours are used

for the individual lines and the small station maps are coloured similarly.

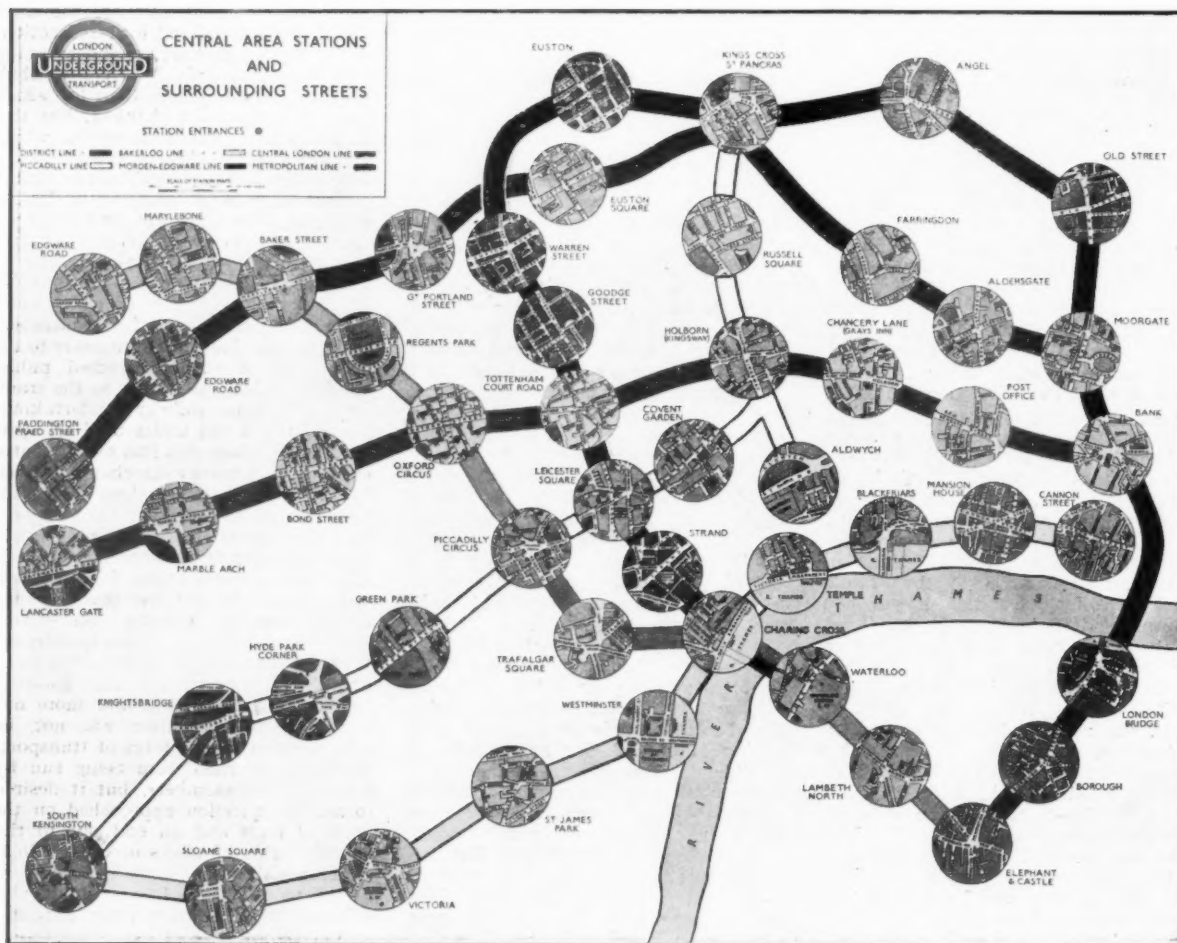
The black and white reproduction below gives an idea of the scope of the new map, which made its appearance at all underground stations on October 30,



A typical station "dot"

and an impression of the separate colour used for each line is afforded by the variations in density of tint. At the time of issue, London Transport expressed the hope that the novel appearance of the map would attract the attention of passengers and encourage them to make use of it; we gather that during the past week this hope has already been fulfilled to a gratifying extent. It may be added that the map was drawn by Edward Stanford Ltd.

STATION IMPROVEMENTS AT REDCAR.—The L.N.E.R. is about to carry out a scheme of improvements at Redcar station. These consist of the provision of the Passimeter booking offices on the Up and Down platforms, and an extension of the new platform on the Up side which was brought into use last summer. Direct access will be given to the Up platform which will obviate passengers living on the south side of the line having to make a detour via the West Dyke level crossing to the main entrance of the station on the Down platform, and then cross the footbridge as at present.



Black and white reproduction of the new London Transport underground railway map of Central London

QUESTIONS IN PARLIAMENT

M.Ps.' Railway Vouchers

Sir F. Fremantle on October 24 asked the Financial Secretary to the Treasury what arrangements would be made in regard to the use by members of their travelling vouchers at the dissolution of this Parliament.

Mr. Duff Cooper.—The following arrangements, which are identical with those at the last dissolution, have been made, and I would ask hon. members to co-operate as closely as possible with the authorities of the House in securing their observation. (1) A member may if necessary use one voucher for the single journey to his constituency immediately after the dissolution. Where of course a member holds the return half of a ticket entitling him to return to his constituency, the use of a further voucher will not be necessary. (2) A member may retain possession of his current book of vouchers and will be at liberty to begin using them as before immediately on re-election. (3) A member must not use any vouchers during the period between the use of the special voucher

under No. 1 above and his re-election. (4) A member defeated at the poll must return his book of vouchers immediately after the declaration of the poll. (5) A member in possession of a book of vouchers and not seeking re-election may retain one voucher for use as under No. 1 above, and should return the remainder of his book to the Fees Office. (6) A member will be asked to reimburse the amount of any fares covered by vouchers the use of which is not in accordance with the above provisions.

Tientsin-Pukow Railway

Mr. Moreing asked the Secretary of State for Foreign Affairs whether any progress had been made towards obtaining payment of arrears of interest and amortisation due to British bondholders in the Tientsin-Pukow Railway.

Sir Samuel Hoare.—An arrangement was made whereby the Railway Administration was to make payments into a special reserve account in order to liquidate arrears of interest and amortisation. Payments under this arrangement are considerably in arrear,

but the funds so far transferred have permitted the payment of three interest coupons. His Majesty's Ambassador in China has lost no opportunity of pressing the Chinese Government in the matter. Similar action has recently been taken by Sir F. Leith Ross, and I am informed that the Chinese Government has the question under serious consideration.

Forth and Clyde Railway

Commander Cochrane asked the Minister of Transport whether his attention had been called to the inconvenience caused to local residents by the discontinuance of passenger trains on the Forth & Clyde Railway, and if he could give an assurance that a passenger-carrying service would be re-instituted in the near future.

Mr. Hore-Belisha.—I understand that the passenger service on this line, was discontinued a year ago owing to the poor support given to the service locally, following on the establishment of omnibus services, and the loss incurred in working. I have no jurisdiction in the matter, and I cannot hold out any hope that the service is likely to be re-instituted.

Railways Athletic Association Annual Dinner

The sixth annual dinner of the Railways Athletic Association was held on November 1, at the Euston Staff Dining Club, under the chairmanship of Mr. E. Rawdon Smith, Public Relations Officer, London Passenger Transport Board, and a Vice-President of the R.A.A. Those present included:—

Mr. and Mrs. W. S. Graff-Baker, Mr. A. E. Hammett, Mr. A. C. Harris, Mr. W. E. C. Lazenby, Mr. S. J. Marchant, Miss H. Mervyn, Major R. F. Morkill, Mr. W. Geo. Pape, Mr. A. B. Potter, and Mr. and Mrs. E. Rawdon Smith.

Mr. Rawdon Smith, following the loyal toast, proposed that of "The Railways Athletic Association" and remarked that he represented the London Passenger Transport Board, the youngest of the railway brethren. London Transport was, however, he emphasised, composed of something besides railways and the number of the board's staff eligible to be members of the Association must tend to diminish in the future. Consequently, he urged the General Committee of the R.A.A. to endeavour to seek a solution to this problem. Friendship on the field bred real friendliness, he continued, and congratulated the R.A.A. on the promotion of foreign competitions wherever possible, recalling the example of the former Underground and Paris Metro meetings. Mr. Rawdon Smith made very appreciative reference to the great support accorded the association by Sir Herbert Walker, General Manager of the Southern Railway. He urged all those in authority to do their best to allow time off whenever reasonably possible for those under them to participate in the

association's activities. Mentioning by name those prominent members in the athletic field, Messrs. T. W. Green, Beavers, Collier and Anderson, Mr. Rawdon Smith urged the junior members to do their best to ensure the continued supply of Olympic champions. He concluded by paying tribute to their Hon. General Secretary, Mr. P. W. Holdaway.

Mr. C. E. G. Honeyball, in reply, spoke of the growth of the association's activities. They were doing very well

and were grateful for the support accorded by the railway companies.

Mr. S. C. Edwards proposed a toast to "The Chairman" and expressed the pleasure of the R.A.A. on having secured the support of London Transport, which he described as the baby of railway companies. He especially welcomed Mr. Rawdon Smith's remarks regarding the granting of time to enable members to attend R.A.A. meetings and such facilities would help the labours of the General Committee to a very great extent. Mr. Rawdon Smith briefly replied.

Roller Bearings in Railway Service

Addressing the Derby Railway Engineering Club on October 22, Mr. J. E. Spear, of British Timken Limited, dealt with the history and the present extent of the application of roller bearings to railway rolling stock. The first experiment in this country, he said, was not made until 1928, since when about 3,000 Timken bearings had been made for railways all over the world. The total number of the company's axleboxes manufactured here and in America amounted to some 30,000.

Mr. Spear explained that the problems which had at one time retarded the adoption of roller bearings on railways, and which had been overcome by Timken equipment, were the crushing pressures exerted by heavy loads at high speeds, severe hammer blows on the bearing surfaces, diagonal twisting and jamming of the rolls, and the heavy and severely fluctuating axle end thrust. Not only were these factors amply allowed for or eliminated, but Timken boxes were simple in construction, economical and convenient

in use and maintenance, and able to negotiate both radial and thrust loads.

Timken axleboxes on the Metropolitan Line of London Transport had run over 250,000 miles without attention other than routine inspection twice yearly of the roller bearings. Oil consumption was less than one-third of a tumbler-full per axlebox every six months.

A set of roller bearings was being supplied to convert the leading bogie and tender of a D4 class engine of the Great Indian Peninsula Railway. Out of 163 engine failures on this railway in 1933, 72 were due to hot boxes, all of which, Mr. Spear contended, could have been obviated by the use of anti-friction bearings. This was a striking demonstration of the economies to be effected by the use of roller bearings in countries with a high temperature, bad atmospheric conditions, and a shortage of competent labour for maintenance work.

RAILWAY AND OTHER MEETINGS

Central Uruguay Railway Company of Monte Video Limited

The ordinary general meeting of the Central Uruguay Railway Company of Monte Video Limited was held at River Plate House, Finsbury Circus, E.C.2, on November 4, Sir Brodie Henderson (Chairman of the company) presiding. The Secretary (Mr. H. O. Tubby) read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, referred to the severe loss sustained by the company in the deaths of Mr. Frank Henderson (the former Chairman) and Mr. H. C. Allen, both of whom had a long and honourable connection with the railway, and possessed a very complete knowledge of its affairs.

During the year under review, £95,126 had been charged to the special exchange reserve, which permitted the balance on that reserve of £80,873 to be put back to general reserve account. Currency receipts indicated that the total trade of the company had remained at about the same level as last year, but working expenses, much of which arose in sterling, had increased considerably in terms of Uruguayan pesos, owing to the conversion at some 11 pesos to the pound. There remained a net revenue debit of £177,074 15s. 5d. to be carried forward after the year's operations.

The company had not yet been able to acquire its own diesel railcars, but an arrangement had been made with the State Railways for the hire therefrom at an economic rental of some light petrol-driven vehicles, which had co-operated with reduced fares in securing an increase of 456,000 passengers on the combined lines, with an increase in currency revenue of nearly \$19,000. It was hoped to develop further the system of hiring State Railways railcars.

Losses due to exchange had made it impossible for the company to continue paying 50 per cent. of the fixed charges as provided under the scheme of arrangement of July, 1933. A complete moratorium until September 30, 1936, but subject to continuance for another year if approved by the committee of stockholders, had therefore been arranged. Everything possible was being done to improve traffic. It was estimated that an annual saving of \$139,000 had been effected by the mechanisation of permanent way trolleys.

The auditors were at present engaged upon investigating schemes for putting the Central Uruguay group of companies upon a sounder basis, as they could not continue to live under the conditions imposed by working agreements framed 45 years ago, when with much lower gross receipts, working expenses were not 50 per cent. Now,

with much higher gross receipts, working expenses were well over 80 per cent., and remittances were sent to this country at a rate very different from that obtaining forty, or even six, years ago.

A trade agreement with Uruguay had now been signed, and was awaiting ratification, one clause of which might be interpreted as meaning that the company would receive more sterling exchange at the official rate than had been the case in the past year. The company had also purchased Uruguayan Government 3½ per cent. gold bonds to the value of £321,420, and was thereby enabled to ensure the transmission to this country of the large peso credit which it had for some time possessed in Uruguay.

The Chairman concluded with good wishes for the continued recovery of Mr. G. R. Cable, who was retiring

from the board owing to ill health after 55 years of service to the company.

A shareholder, Mr. M. S. Moore, said that as a Director of the Great Northern Railway (Ireland) he would be interested to know whether the company had studied the measures adopted in Ireland to co-ordinate transport and develop railbus services. In the latter connection, it was his experience that diesel-driven units were cheaper to run than those with petrol engines.

In reply, the Chairman said that such developments all over the world were closely watched, and explained that petrol for the State Railways railcars now in service was provided by the Government as part of the hire agreement.

The report and accounts were then unanimously adopted.

The Chairman next presided at the meetings of the Central Uruguay Northern Extension Railway Co. Ltd. and Central Uruguay Eastern Extension Railway Co. Ltd., the reports and accounts of which were unanimously adopted.

Buenos Ayres Western Railway Limited

The ordinary general meeting of the Buenos Ayres Western Railway Limited was held at River Plate House, E.C.2, on November 6, Sir Follett Holt, K.B.E. (Chairman of the company), presiding. In the absence, due to illness, of the Secretary, Mr. Robert Graham, the Acting Secretary, Mr. N. F. E. Grey, read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said that the directors were sorry to have to present so disappointing a result after the more promising outlook described at the meeting last year. Rain followed by drought had affected the crops in the company's area, and but for an all-round improvement in trade, the loss of traffic, actually amounting to £99,000 at the par rate of exchange, would have been more pronounced.

The railway had been economically worked for many years, and labour restrictions made it hard to secure further savings. It was particularly unfortunate, therefore, that the fall in receipts had been accompanied by a rise in expenditure of £110,000, caused mainly by an additional charge arising from the Presidential Award on labour questions. No relief had come during the year from the clause giving additional flexibility in the use of men, as this had taken effect only from the first of the present month. Exchange losses on actual remittances were very much heavier, but the credit on account of the valuation of floating assets brought down the total to £310,543, which was some £37,000 less

than in the previous year. It was very unfortunate that a long record had been broken by the decision to authorise payment of only one-half the full rate on the 4½ per cent. stock, but earnings during the year, and the prospect of an unpromising season ahead following the drought, had compelled the board to take this action.

On January 1 a million pounds of 5 per cent. bearer notes created ten years ago in a period of financial stress had fallen due for repayment. These notes had been renewed for a further three years at the lower annual rate of 4 per cent. That the company was able to reduce the note indebtedness by £400,000 was largely due to the substantial reductions that have been made during the past six years in the volume and value of the stores held by the railway. It was found that with the advent of the bi-weekly airmail services, orders for materials could be placed more quickly and at shorter interval, making it possible to work on a closer margin. These services had greatly facilitated the task of keeping in close touch with Buenos Aires on all subjects, and the fact that the reply to a letter could now be received in 12 instead of 42 days was of the greatest assistance. The company's one regret was that the air lines from Great Britain to South America were not under our own flag.

The Chairman said he had referred last year to the steps that were being taken, since completed, to operate the Great Southern and Western Railways together. Mr. Robert Graham, the company's Secretary, had been appointed also Secretary of the Great

Southern, and having in mind the ever-growing complexity in connection with railway operation and control, Mr. C. R. S. Harris had been selected to take charge of the two systems in Argentina. To overcome divergent views and ambitions, and to weld together a staff of some 37,000 souls had been no mean task, but it had been carried out in the cause of efficiency and economy, which must be the watchwords of all responsible persons at this period of the world's history.

To the great regret of the board, in March last, after many years of devotion to the company's interests, their valued colleague Henry Charles Allen passed away. The vacancy caused on the board had been filled by the appointment of Colonel R. T. Harper, whose intimate knowledge of the two systems would, the Chairman was sure, prove to be of good help in the conduct of affairs.

In view of the difficulties in connection with exchange, labour legislation and with road transport, and in order to keep in close touch with the authorities, a member of the board, Mr. Eddy, had been spending many months in Argentina. He was remaining to meet the Chairman of the Central Argentine and the Managing Director of the Pacific Railway, who would arrive there towards the end of this month, and they would again represent to the authorities the urgent need of safeguarding the life of the railway industry.

The fact that the Argentine Congress had not yet dealt with much needed Government measures had been a source of severe disappointment, but the Chairman did not propose to dwell upon it. He recognised that the war and the post-war years had been as trying to the nerves of nations as of individuals, but he believed that with patience and goodwill on both sides, the cloud could be dispelled.

The company was exploring every avenue leading to lower operating costs in self defence against road competitors, whose activities had necessitated the reduction of rates. The chairman estimated that last year's net revenue would have been £338,000 higher had the railway been able to charge the rates current in 1929. Railways which were the property of the provincial government, as well as buses and lorries, were undercutting the company's rates throughout its zone. A Bill to amend these conditions was vital not only to the welfare of the railway but of the country.

Perhaps the worst stage of the rate cutting had been passed, and some at least of the company's traffic should be regained. To regain certain passenger and station-to-station business, experiments were being made with diesel units, the extended use of which throughout Argentina was likely. One unit, manufactured by Armstrong Whitworth and tried out on the company's system, had proved to be a

great success and had already run 120,000 miles at a very low operating cost; the diesel engine had required no repairs whatever; the higher speeds and the greater comfort provided had proved most acceptable to the travelling public. The company had evidence that the daily round-trip of 400 miles by this vehicle had attracted many passengers who would otherwise have travelled by road or not at all. The Chairman believed there was a great future in South America for this type of vehicle, and manufacturers at home, he felt sure, would fully realise that it was only by more speedy deliveries and at lower selling prices that full and quick advantage could be taken of this new and important field.

It was unfortunate that small progress had been made towards an agreement with the Buenos Aires Provincial Government for regulating competition from the State Railway. The company had derived good benefit from its one-third partnership in the oilfields at Comodoro Rivadavia, from which source it obtained practically all the fuel oil it required. The oil company had recently arranged to acquire at a reasonable price further oil-bearing lands adjacent to its property.

Bad weather, and a dispute between growers and merchants in Buenos Aires, had made the year a poor one for the railway's fruit-growing district at Colonia Alvear. Following the report of an expert whose services the company had secured, the provincial authorities were attaching every importance to the maintenance and extension of the irrigated zone, so that there was little doubt that, given normal weather, the important traffic obtained from this area would continue to improve.

Prospects for the current year were uncertain owing to the drought. Wheat production would be less, but great hopes were centred on the next maize crop. Moreover, at the beginning of this financial year it was estimated that there remained to be carried in the company's zone no less than 540,000 tons of the last maize crop, a volume about one and a half times as great as the whole of the same traffic carried last year. It was possible, therefore, that maize might afford substantial help towards making amends for the shortcomings of wheat. A cablegram from the Director General could be considered satisfactory in all the circumstances.

The report and accounts were unanimously adopted.

Road and Rail Transport—the Trader's View

Mr. J. J. Hughes, M.Inst.T., who is Chairman of the Traders' Co-ordinating Committee and a Member of the Transport Advisory Council, spoke at the G.W.R. Lecture and Debating Society meeting at Paddington station on October 31, on the subject of "The Trader's View in regard to Road and Rail Transport." Mr. H. W. Payne, Principal Assistant to the Chief Goods Manager, G.W.R., presided.

The speaker dealt with the authorisation under the Road and Rail Traffic Act of 1933 of "agreed charges" between railway companies and traders, and pointed out that these were subject to approval by the Railway Rates Tribunal; this approval was withheld if requirements could be met adequately by the grant of appropriate exceptional rates under the Railways Act, 1921. This provision of the exceptional rates alternative was inserted in the Act on strong representations made by traders. Another provision that was urged by the traders, but in this case without success, was that no agreed charge should be sanctioned except on a tonnage basis. Hundreds of agreed charges had been sanctioned since the passing of the Act, the majority on a tonnage basis, but some at a "per package" rate. The agreed charge which had given rise to the most controversy was the one arranged by the railway companies with F. W. Woolworth & Co. Ltd., on a percentage of value basis. In respect of certain commodities, he contended that this had adversely affected small traders.

Mr. Hughes proceeded to deal with the issue and control of road haulage licences under the Act, namely, "A" licences for public carriers, "B" licences for limited carriers, and "C" licences for traders conveying only their own goods and manufactures. He expressed approval of the conditions imposed upon hauliers in regard to fitness of vehicles, drivers' hours, wages, journey records, &c., and said that there was a strong case for equalising the position between road carriers and railway companies in regard to obligation to carry, classification of goods, and publication of schedules of charges. He thought the provisions of the Act in respect of licences were working smoothly.

Speaking of possible future transport developments, Mr. Hughes said the general position in regard to liberty of user of road vehicles was not at all settled, and traders and others would be well advised to make up their minds as to what was the best course to adopt. Were they on the way to transport rationalisation and how far along that road were they destined to travel?

With regard to the proposal which had been submitted by the railway companies to the Railway Rates Tribunal for a modification of the scale of charges for small parcels by merchandise train, he thought no objection should be put forward, as the railways were, in this instance, doing what traders had often asked them to do in simplifying an elaborate and cumbersome system of charging.

RAILWAY AND OTHER REPORTS

Buenos Ayres & Pacific Railway.

—One year's arrears of interest to June 30, 1934, less tax, will be paid on the $4\frac{1}{2}$ per cent. second debenture stock.

Argentine Great Western Railway.

—One year's arrears of interest to June 30, 1934, will be paid on the 4 per cent. irredeemable second debenture stock.

Brazil Railway Company.

Holders of 5 per cent. first mortgage 60-year variable income gold bonds (International series) are advised that the variable interest for the year 1934 will be paid as follows:—English issue—for each £200 bond, £1 10s.; for each £100 bond, 15s.; and for each £20 bond, 3s. Belgian issue—for each bond of 500 f. (or £19 17s. 5d.), 2s. 11d. This interest was paid at the Bank of Scotland, 30, Bishopsgate, London, E.C.2, on November 5.

Bahia Blanca & North Western Railway.

The guaranteed rental of £440,000 due from the Buenos Ayres Great Southern Railway Co. Ltd., in respect of the year ended June 30, 1935, has been received, and the interest of £233,000 on the 4 per cent. first and the $4\frac{1}{2}$ per cent. second debenture stocks, and the dividend of £207,000 on the $4\frac{1}{2}$ per cent. guaranteed stock have been duly paid. The London office expenses, including directors' fees, have been paid by the working company.

Dorada Railway.—Gross revenue of the railway for the year ended December 31, 1934, was £122,660 and the working expenses were £75,093, leaving a net revenue of £47,567, against £23,308 for 1933. Receipts from passengers improved from £16,166 to £21,184, and goods receipts advanced from £66,370 to £93,522. Passengers numbered over 30 per cent. more and the receipts from this traffic were over 20 per cent. more than in 1933. The total paying goods tonnage was about 17 per cent. greater and the receipts therefrom in Colombian currency about 27 per cent. greater. Working expenses were about 13.4 per cent. higher, due to larger traffic, increase in wages, and the introduction by the State of the eight-hour day. Gross earnings of the ropeway branch in 1934 were £52,522, and the expenses were £42,338 against £46,097 and £35,915 respectively in 1933. The eight-hour day seriously interfered with the working, but an adjustment has now been made whereby the men will work overtime when necessary to avoid congestion.

Argentine North Eastern Railway.

—Gross receipts for the year ended June 30, owing to better passenger and cattle traffic, were higher by \$409,262 paper, or 6.5 per cent., and working expenses increased by \$182,778 paper, or 3.6 per cent. The net receipts of \$1,383,314 paper therefore rose by \$226,483, equivalent at par of exchange to £19,772. There was a loss on exchange of £47,510 (against £40,116),

and after debiting debenture interest and other charges there is shown a deficit for the year to £59,304 (against £77,711), raising the total debit balance to be carried forward of £208,474. Holders of B debentures and debenture stock have agreed to a renewal of the moratorium. The rail motor lorry services between Empredado and Corrientes and between Concordia and Pedernar have given satisfactory results. The arrival from England during the year of 36 motor gang trolleys and eight motor velocipedes has made it possible to effect a complete reorganisation of permanent way maintenance. No restoration of salary and wage cuts was made during the year.

Karachi Port Trust.—Revenue receipts in 1934-35 increased from Rs. 61,94,000 (including Rs. 1 lakh from sinking funds) to Rs. 69,60,000. Expenditure at Rs. 66,23,000 left a surplus of Rs. 3,37,000 on the year, from which Rs. 3,33,000 were transferred to reserve fund, raising it to Rs. 52,14,598. The total volume of imports and exports was 1,956,000 tons, or an increase of 20.9 per cent. over the figure for the previous year of 1,617,000 tons. Imports increased by 7.9 per cent. and exports by 31.6 per cent. Cotton shipments (1,580,258 bales) constituted a record for the port.

Port of Rangoon.—The report for the year ended March 31, 1935, shows a total income of Rs. 75,34,972, which is an improvement of Rs. 4,46,117 over 1933-34 and represents an excess over expenditure of Rs. 8,01,161, or Rs. 2,35,009 better than had been estimated. Expenditure was Rs. 67,33,811, representing a decrease of Rs. 4,78,477. The net tonnage of steamers entering the port was 4,297,929 tons, or 82,026 tons more than last year. Sea-borne trade passing through the port totalled 5,588,139 tons, compared with 5,066,333 tons, and of this amount 1,786,583 tons was handled over the commissioners' premises, against 1,604,516 tons out of the total in 1933-34.

Assam Railways & Trading Co. Ltd.—Gross earnings for the year ended March 31, 1935, were Rs. 19,91,949, an increase of Rs. 76,852 over those for 1933-34, but the total expenditure of Rs. 12,30,169 was higher by Rs. 1,04,625. Gross earnings from the railway amounted to £149,396, a net improvement of £5,764 due to the goods traffic, which brought in £7,834 more, but an increase in expenditure made the profit on working £57,133 as against £59,216. Train miles run were 371,763 as against 369,433, and the number of passengers carried was 1,372,829, a decrease of 40,260. General revenue account shows a profit for the twelve months of £88,030, against £86,429 for the previous year. Debenture and note interest and dividends on the 8 per cent. pre-preference A shares and on the new 6 per cent. pre-preference shares are paid in full, but, as

in the previous year, no distribution is made on the A and B stocks.

Bombay Port Trust.—Actual receipts for 1934-35 were Rs. 243.87 lakhs, or in comparison with 1933-34 and adjusting both figures to allow for equalisation of surtax, a decrease of Rs. 1.44 lakhs. Working expenses, at Rs. 246.76 lakhs, amounted to 51.12 per cent. of revenue, or an increase of about 2 per cent. on the preceding year. Cargo handled increased by 169,000 tons to 5,441,000 tons, of which imports accounted for 58 per cent. and exports for 42 per cent. This represented a decrease of 1.1 per cent. in exports, but individual items showed increases in cotton, packed kerosene oil, piecegoods, and petrol.

Salvador Railway.—Receipts for the year to June 30 were £81,209 (against £73,154) and expenses £77,492 (against £84,538), showing a profit of £3,717 against a loss of £11,384 for 1933-34. After providing for interest charges, &c., however, there was a net loss for the year of £26,696 (against £47,508), which increases the debit balance to £171,791, to which has to be added the special expenditure on hurricane damage. The number of passengers carried was 526,834. Although this shows a decrease of 159,900 compared with last year, receipts in sterling were lower by only £821. The goods handled totalled 88,410 tons, against 82,507 in 1933-34, an increase in tonnage of 5,903, of which 7,101 tons were non-paying freight. Receipts were £11,678 larger. The hurricane in June, 1934, caused widespread damage, and at June 30 last £22,093 had been expended on repairing the line. It has not been possible during the past financial year to redeem any debentures or to meet the interest on the mortgage debentures and ten-year notes. The interest on the prior lien debentures was paid on the due dates.

Forthcoming Meetings

- Nov. 12. (Tues.)—**Argentine Great Western Railway Co. Ltd.** (Ordinary General), Winchester House, Old Broad Street, E.C., at 11 a.m.
- Nov. 12. (Tues.)—**Bengal Dooars Railway Co. Ltd.** (Ordinary General), Gresham House, Old Broad Street, E.C., at 2.45 p.m.
- Nov. 13. (Wed.)—**Cordoba Central Railway Co. Ltd.** (Ordinary General), River Plate House, Finsbury Circus, E.C.2, at 2.30 p.m.
- Nov. 14. (Thurs.)—**Bengal-Nagpur Railway Co. Ltd.** (Ordinary General), 132, Gresham House, Old Broad Street, E.C., at 12 noon.
- Nov. 14. (Thurs.)—**Peruvian Corporation Limited** (Annual General), River Plate House, Finsbury Circus, E.C.2, at 2.30 p.m.
- Nov. 18. (Mon.)—**Entre Rios Railways Co. Ltd.** (Ordinary General), River Plate House, Finsbury Circus, E.C.2, at 2 p.m.
- Nov. 22. (Fri.)—**Argentine North Eastern Railway Co. Ltd.** (Ordinary General), River Plate House, Finsbury Circus, E.C.2, at 12.30 p.m.

NOTES AND NEWS

Netherlands Time.—The Netherlands Parliament has thrown out the Bill for the introduction of Central European in place of Amsterdam time, so that the inconvenient 20 minutes difference between Greenwich and Amsterdam time is to remain for the present.

L.N.E.R. Muscial Society's Dance.—The L.N.E.R. Musical Society held its first dance of the season at Hamilton Hall, Liverpool Street Hotel, on Friday, last, November 1. A feature of these dances is the music always provided by the society's dance orchestra. The joint secretaries were Mr. Chas. H. Hills and Mr. Arthur Vale, who also acted as M.C.'s.

Railway Electrical Staff.—Under an Industrial Court award announced on November 2, about 845 men in London and the provinces on the electrical staffs of the four main line railways will receive an increase in pay of one penny an hour. They had asked for an increase of threepence. The new rates will be subject to the general deduction of 2½ per cent. made from the wages of other railway grades.

Passenger Traffic in Berlin.—During 1934 the electric trains of the Stadt, Ring, and Vovortbahnen in Berlin carried 395,966,400 passengers, an increase of almost 15 per cent. over the figures for 1933. Friedrichstrasse station, with 16,213,300 passengers, was the busiest station, and was followed by Alexanderplatz with 14,978,700, the Potsdamer Ring station with 11,854,100, and the Schlesische station with 10,170,200.

Hastings Trolleybuses to be Railway Associated.—At a meeting of the Hastings & District Electric Tramways Co. Ltd., yesterday (November 7), unanimous approval was given by the shareholders to the agreement of their directors to sell the company's holding in the Hastings Tramways Company—the whole of the latter's issued capital—to the Maidstone & District Motor Services for £85,000 in cash and 16,620 fully paid £1 ordinary shares. The Maidstone concern will thus become the first railway-associated company, outside London, to run trolleybuses.

Another Flying Hamburger Service.—A second fast diesel service is to be inaugurated between Hamburg and Berlin with one of the new 820 b.h.p. two-car units delivered this year. The new service will leave Altona at 6.53, Hamburg (Dammtor) at 7.03, Hamburg (Hbf.) at 7.09, and will reach Berlin (Lehrte) at 9.29, after covering the 178.1 miles from Hamburg (Hbf.) in 140 min. On the return journey the Lehrte station will be left at 18.18, and Hamburg (Hbf.) reached at 20.36; the scheduled arrival time at Dammtor is 20.43, and at Altona 20.53. The times in each direction between Hamburg (Hbf.) and Berlin are the same as those

of the present Flying Hamburger (which will continue to run), and correspond to start-to-stop speeds of 76.3 m.p.h. up and 77.4 m.p.h. down.

Italian Train Service Restrictions.—It is reported that, in order to economise coal, the principal train services between Rome and Genoa are to be diverted from the steam-worked main lines along the west coast to the newly electrified inland route via Florence. A number of services have been withdrawn since November 6.

Disused Italian Railway Lines to be Pulled Up.—According to a Reuters message from Rome, the Fascist Party has given orders that all disused railway and tram lines shall be pulled up and the metal put to some use. This work is to be done, according to the directions given, either by volunteers or by unemployed. There are, according to the newspaper *Tribuna*, hundreds of miles of useless lines up and down the country.

Northern Ireland Road Transport Board.—We learn that notices have been served on the following undertakings that they will be acquired by the Northern Ireland Road Transport Board on Tuesday, November 19: William E. Martin, Rathfriland; Hugh McNulty, Warrenpoint; Michael McNally, Newry; William A. Agnew, Belfast; Richard Barkley, Larne; John Wilson, Belfast; David Wilson, Dungonnell; Bernard Cregan, Newry; Michael Clarke, Backaderry; Charles Downey, Rathfriland; Robert McGivern, Carrowdore; Robert Patterson, Belfast; David Lawther, Drumbeg; John McNeilly, Belfast; Wm. Nevin, Belfast; R. Stevenson & Son, Rathfriland; J. and R. J. Steen, Newtownhamilton; T. V. Weir, Newtownards; Lawther Bros. (James and Robert), Ballywalter.

Rival Transport Unions in Ireland.—In the Dublin High Court on October 30, Mr. Justice Meredith gave judgment for the plaintiffs in which the Irish Transport and General Workers' Union sought a declaration that the recording in the register of trade unions in the Irish Free State, of the defendants, the Transport and General Workers' Union, whose head offices are at Transport House, Westminster, and are known in the Free State as the Amalgamated Transport and General Workers' Union, or of the rules of these unions, was illegal and invalid. The plaintiff union was founded and registered in Ireland in 1909. The defendant union was formed and registered in England in 1921, and in 1922 extended its activities to Ireland. The judge held that it was obvious that the use in Ireland of the name "Transport and General Workers' Union" would be bound to create confusion, and that any attempt to obtain membership in Ireland under that name must pre-

judicially affect the good will in a wide sense of the plaintiff union.

Dismantling a South Wales Branch.—The Great Western Railway branch between Nelson and Pontypridd, via Cilfynydd, which was closed on September 10, 1932, is now being dismantled and gangs are at present taking up the track between Nelson and Cilfynydd. This line was formerly a part of the Taff Vale Railway which was amalgamated with the Great Western Railway as from January 1, 1922, in one of the preliminary grouping schemes. Recently the station buildings at Nelson have been used as a railwaymen's institute.

Municipal Railways for New York.—According to *The Times* correspondent, a tentative understanding has been reached, after lengthy negotiations, between the Mayor of New York and the various companies operating the elevated and underground railways in New York, whereby the city will take over the entire system for \$416,861,000 (£83,372,500). Payment will be made mainly in bonds, to be issued by the Board of Transport Control which is to be set up to manage what will be one of the largest quasi-municipal enterprises in the world.

Mr. R. E. Charlewood.—We regret to have to report that Mr. R. E. Charlewood is still under detention in Germany. It is understood he has been moved to Moabit prison in Berlin while the German Public Prosecutor makes further inquiries. In the meantime measures have been taken by his friends in England to assure that his case is properly represented. Mr. Charlewood, who is well known as an authority on railway working, both at home and abroad, is one of our oldest and most valued contributors. He began writing in our associated monthly contemporary *The Railway Magazine* as long ago as 1902.

Irish Free State Railways Bill.—The Railways Bill which has recently been introduced in the Dail by the Minister for Industry and Commerce extends the period during which the stocks of the Great Southern Railways Company may be used for the investment of trust or court moneys. The Act of 1933 authorised the investment of such moneys in the company's stocks up to December 31, 1935, whether the company does, or does not, pay a dividend at the rate of 3 per cent. on its ordinary stock. By the new Bill the period is extended on the same conditions to December 31, 1937.

The Royal Honeymoon.—Denied most of the usual rejoicings associated with a Royal wedding through the death of the bride's father, the departure of T.R.H. the Duke and Duchess of Gloucester on their honeymoon from the L.M.S.R. St. Pancras terminus, on Wednesday afternoon last, provided some Londoners with a brief glimpse of Royal pageantry. The train which took the bride and bridegroom to Kettering was drawn by locomotive

No. 5552, *Silver Jubilee*, resplendent from the cleaner's hands, with its chromium plating glistening, and consisted of a first class brake coach, a first class restaurant car, the Royal saloon, and a first class lounge brake coach. A red carpet had been laid along the platform, and a battery of floodlights suspended above gave a brilliant appearance to the bride's costume and the bridesmaid's dresses. Sir Josiah Stamp, President and Chairman of the Executive, L.M.S.R., received the Royal party, and Mr. H. E. Horne, Assistant Passenger Manager, and Mr. H. Callandine, Stationmaster, were in attendance. The train left punctually for Kettering at 3.45 p.m., where it arrived at 5 p.m. Mr. E. D. Grasset, Midland Divisional Superintendent of Operation, was in charge of the train.

4-8-4 Type Locomotive for China.

The article dealing with the 4-8-4 type locomotives built by the Vulcan Foundry Limited for the Chinese National Railways which appeared in our last week's issue omitted to mention that

the 24 engines are equipped with Wakefield type "E" Eureka lubricators for lubricating the valves, stoker engine, and air pump. In addition, the six engines yet to be built with boosters will have a separate lubricator of the Wakefield type "G" for lubricating the Stone's booster. The drawing of the cab on page 718 showed the positions of the Wakefield Eureka lubricators, but reference to them was left out of the text matter.

Road Accidents.—The Ministry of Transport return for the week ended November 2 of persons killed or injured in road accidents is as follows. The figures in brackets are those for the corresponding period of last year:—

	Killed, including deaths resulting from previous accidents		Injured
England	135	(154)	4,100 (3,710)
Wales	7	(7)	142 (177)
Scotland	15	(17)	352 (343)
	157	(178)	4,594 (4,230)

The total fatalities for the previous week were 122, as compared with 169 for the corresponding period of last year.

British and Irish Railways Stocks and Shares

Stocks	Highest 1934	Lowest 1934	Prices	
			Nov. 6, 1935	Rise Fall
G.W.R.				
Cons. Ord. ...	661 ¹ / ₂	481 ¹ / ₂	471 ¹ / ₂	+2
5% Con. Prefce.	118	109	112 ¹ / ₂	—
5% Red. Pref. (1950) ..	115	107	108 ¹ / ₂	—
4% Deb. ...	117	105	111	—
4 1/2% Deb.	119	109	112 ¹ / ₂	—
4 1/2% Deb.	129 ¹ / ₂	115 ¹ / ₄	120 ¹ / ₂	—
5% Deb. ...	135	126 ¹ / ₄	133 ¹ / ₂	—
2 1/2% Deb.	75	64	71	—
5% Rt. Charge ...	1347 ¹ / ₁₆	123 ¹ / ₄	130 ¹ / ₂	—
5% Cons. Guar. ...	132 ³ / ₄	121 ³ / ₄	127 ¹ / ₂	—
L.M.S.R.				
Ord. ...	301 ¹ / ₂	191 ¹ / ₂	18	+1 ¹ / ₂
4% Prefce. (1923) ..	64 ¹ / ₄	41	50 ¹ / ₂	+1 ¹ / ₂
4% Prefce.	87	69 ¹ / ₂	79 ¹ / ₂	+1 ¹ / ₂
5% Red. Pref. (1955) ..	107	92 ¹ / ₂	100 ¹ / ₂	—
4% Deb.	114 ¹ / ₂	100 ¹ / ₂	105 ¹ / ₂	—
5% Red. Deb. (1952) ..	1181 ¹ / ₁₆	111 ¹ / ₄	112 ¹ / ₂	—
4% Guar.	106 ¹ / ₂	96 ³ / ₄	100 ¹ / ₂	—
L.N.E.R.				
5% Pref. Ord. ...	24 ³ / ₄	131 ¹ / ₂	10	+5 ³ / ₄
Def. Ord.	11 ¹ / ₂	6 ⁷ / ₈	5 ¹ / ₂	+1 ¹ / ₄
4% First Prefce.	76	59 ¹ / ₂	53 ¹ / ₂	+2 ¹ / ₂
4% Second Prefce.	47	25 ¹ / ₂	20	+1
5% Red. Pref. (1955) ..	94 ¹ / ₂	80	73 ¹ / ₂	—
4% First Guar.	104	92	96	+1
4% Second Guar.	97 ⁷ / ₈	86 ¹ / ₂	86	+1
3% Deb. ...	90	74 ¹ / ₂	79	+1
4% Deb.	114	99 ¹ / ₄	104 ¹ / ₂	+1
5% Red. Deb. (1947) ..	117	108	109 ¹ / ₂	—
4 1/2% Sinking Fund	111 ¹ / ₄	105 ¹ / ₄	109	—
Red. Deb.				
SOUTHERN				
Pref. Ord.	90	63 ¹ / ₈	81	+3
Def. Ord.	32 ⁵ / ₈	19	20	+1 ¹ / ₂
5% Prefce.	118 ³ / ₁₆	107 ¹ / ₂	113 ¹ / ₂	—
5% Red. Pref. (1964) ..	115 ¹ / ₄	107 ¹ / ₂	111 ¹ / ₂	—
5% Guar. Prefce.	132	120 ³ / ₄	127 ¹ / ₂	—
5% Red. Guar. Pref. (1957)	119 ¹ / ₂	113	115 ¹ / ₂	—
4% Deb.	116 ¹ / ₂	103 ¹ / ₄	110	—1 ¹ / ₂
5% Deb. ...	134	124 ¹ / ₁₆	133 ¹ / ₂	—
4% Red. Deb. 1962-67	1131 ¹ / ₁₆	105 ⁹ / ₁₆	110 ¹ / ₂	—
BELFAST & C.D.				
Ord. ...	6	5	8 ¹ / ₂	—
FORTH BRIDGE				
4% Deb. ...	110	100	105 ¹ / ₂	—
4% Guar.	110	100	104 ¹ / ₂	—
G. NORTHERN (IRELAND)				
Ord. ...	9 ⁵ / ₄	41 ⁵ / ₁₆	161 ¹ / ₄	—
G. SOUTHERN (IRELAND)				
Ord. ...	25	12 ¹ / ₂	37	—
Prefce. ...	21 ¹ / ₂	131 ¹⁵ / ₁₆	44 ¹ / ₂	—
Guar. ...	48	39	78 ¹ / ₄	—1 ¹ / ₄
Deb. ...	67	59	80 ¹ / ₂	+5 ⁸ / ₁₆
L.P.T.B.				
4 1/2% "A" ...	126	115	120 ¹ / ₂	—
5% "A" ...	135 ¹ / ₂	124 ¹ / ₂	130 ¹ / ₂	—
4 1/2% "T.F.A." ...	113 ¹ / ₂	107 ¹ / ₂	109	—
5% "B" ...	131 ³ / ₄	118	126 ¹ / ₂	+1
"C" ...	97	73	103	+4
MERSEY				
Ord. ...	151 ⁴ / ₈	7	151 ² / ₂	+2 ¹ / ₂
4% Perp. Deb.	93 ¹ / ₂	82 ¹ / ₂	94 ¹ / ₂	—
3% Perp. Deb.	66 ¹ / ₂	61 ¹ / ₂	74	+4 ¹ / ₂
3% Perp. Prefce.	54	44 ¹ / ₂	54 ¹ / ₂	+2

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 44th Week			Totals to Date		
	1935	1934	Inc. or Dec.	1935	1934	Inc. or Dec.
L.M.S.R. (6,925 ¹ / ₄ mls.)	£	£	£	£	£	£
Passenger-train traffic...	398,000	397,000	+ 1,000	21,677,000	21,284,000	+ 393,000
Merchandise, &c. ...	483,000	474,000	+ 9,000	19,741,000	19,593,000	+ 148,000
Coal and coke ...	249,000	238,000	+ 11,000	9,981,000	9,890,000	+ 91,000
Goods-train traffic ...	732,000	712,000	+ 20,000	29,722,000	29,483,000	+ 239,000
Total receipts ...	1,130,000	1,109,000	+ 21,000	51,399,000	50,767,000	+ 632,000
L.N.E.R. (6,336 mls.)						
Passenger-train traffic...	272,000	270,000	+ 2,000	14,129,000	13,828,000	+ 301,000
Merchandise, &c. ...	386,000	362,000	+ 24,000	13,717,000	13,768,000	— 51,000
Coal and coke ...	250,000	233,000	+ 17,000	9,738,000	9,915,000	— 177,000
Goods-train traffic ...	636,000	595,000	+ 41,000	23,455,000	23,683,000	— 228,000
Total receipts ...	908,000	865,000	+ 43,000	37,584,000	37,511,000	+ 73,000
G.W.R. (3,749 ¹ / ₄ mls.)						
Passenger-train traffic...	166,000	168,000	— 2,000	9,186,000	9,048,000	+ 138,000
Merchandise, &c. ...	195,000	193,000	+ 2,000	7,981,000	7,907,000	+ 74,000
Coal and coke ...	113,000	97,000	+ 16,000	4,315,000	4,364,000	— 49,000
Goods-train traffic ...	308,000	290,000	+ 18,000	12,296,000	12,271,000	+ 25,000
Total receipts ...	474,000	458,000	+ 16,000	21,482,000	21,319,000	+ 163,000
S.R. (2,171 mls.)						
Passenger-train traffic...	258,000	248,000	+ 10,000	13,422,000	13,047,000	+ 375,000
Merchandise, &c. ...	70,000	72,500	— 2,500	2,698,500	2,859,500	— 161,000
Coal and coke ...	37,000	30,500	+ 6,500	1,298,500	1,337,500	— 39,000
Goods-train traffic ...	107,000	103,000	+ 4,000	3,997,000	4,197,000	— 200,000
Total receipts ...	365,000	351,000	+ 14,000	17,419,000	17,244,000	+ 175,000
Liverpool Overhead ...	1,098	1,072	+ 26	52,144	50,243	+ 1,901
(6 ¹ / ₂ mls.)						
Mersey (4 ¹ / ₂ mls.) ...	4,121	4,081	+ 40	176,938	179,189	— 2,251
*London Passenger Transport Board ...	550,300	539,500	+ 10,800	9,777,100	9,636,600	+ 140,500
IRELAND						
Belfast & C.D. pass	1,994	1,982	+ 12	114,504	113,446	+ 1,058
(80 mls.)						
goods	672	644	+ 28	22,398	22,773	— 375
total	2,666	2,626	+ 40	136,902	136,219	+ 683
Great Northern pass.	9,000	8,750	+ 250	473,250	450,250	+ 23,000
(543 mls.)						
goods	12,800	11,200	+ 1,600	410,450	385,550	+ 24,900
total	21,800	19,950	+ 1,850	883,700	835,800	+ 47,900
Great Southern pass.	22,086	21,468	+ 618	1,103,593	1,075,317	+ 28,276
(2,124 mls.)						
goods	43,599	39,242	+ 4,357	1,536,083	1,440,850	+ 95,233
total	65,685	60,710	+ 4,975	2,639,676	2,516,167	+ 123,509

* 18th week, the receipts for which include those undertakings not absorbed by the L.P.T.B. in the corresponding period last year; last year's figures are, however, adjusted for comparative purposes

CONTRACTS AND TENDERS

The Hydraulic Coupling & Engineering Co. Ltd. has received an order for a traction-type hydraulic coupling for installation in a diesel railcar belonging to the South Manchuria Railway, which is powered by a 130 b.h.p. engine working in conjunction with an epicyclic gearbox.

L.M.S.R. 1936 Rolling Stock Programme

The L.M.S.R. announces completion of its rolling stock programme for 1936, involving an expenditure of £2,232,000. This programme includes nearly 10,000 new passenger and goods vehicles, most of which will be constructed in the L.M.S.R. shops at Derby and Wolverton. New passenger vehicles totalling 687 are to be built, including 84 vestibule coaches, 380 corridor coaches, 18 restaurant cars, and four buffet cars.

The stock of freight vehicles, on which £1,173,000 is to be spent, is to be augmented by 9,235 vehicles, including 750 12-ton open merchandise wagons, 2,000 12-ton medium-sized goods wagons, 2,500 12-ton covered merchandise vans, 2,500 12-ton mineral wagons, 650 20-ton steel hopper wagons, 10 20-ton bulk grain vans, 10 12-ton traction trucks, 20 7-ton gunpowder vans, and 50 30-ton bogie bolster wagons.

The L.M.S.R. has placed orders for a total of 1,000 wagons for freight service, part of the programme above outlined, as follow:—

METROPOLITAN-CAMMELL CARRIAGE & WAGON CO. LTD.:
350 20-ton bogie hopper wagons with copper bearing steel plates.

BIRMINGHAM RAILWAY CARRIAGE & WAGON CO. LTD.:
200 20-ton bogie hopper wagons with copper bearing steel plates.

GLOUCESTER RAILWAY CARRIAGE & WAGON CO. LTD.:
100 20-ton bogie hopper wagons with wrought-iron plates.

CHAS. ROBERTS & CO. LTD.:
200 20-ton 27-ft. tube wagons.

HURST NELSON & CO. LTD.:
100 20-ton 30-ft. 6-in. tube wagons, and 50 30-ton bogie bolster wagons.

John Lang & Sons Ltd. has received an order from the Central Argentine Railway for one heavy-duty sliding, surfacing and screwcutting lathe.

The Butler Machine Tool Co. Ltd. has received an order from the Bengal-Nagpur Railway for one slotting machine.

The Churchill Machine Tool Co. Ltd. has received an order from the Bengal-Nagpur Railway for one piston and valve rod grinding machine.

The Bengal-Nagpur Railway Administration has placed orders with the Superheater Co. Ltd. for superheater headers and elements, and with the West Bromwich Spring Co. Ltd. for spiral springs.

Leyland Motors Limited has received orders from railway-associated road transport operators as follow: Eastern National Omnibus Co. Ltd., six oil-engined Titans; Lincolnshire Road Car Co. Ltd., 15 Cubs; and Western Welsh Omnibus Co. Ltd., four Cubs.

D. Wickham & Co. Ltd. has received an order from the Central Uruguay Rail-

way of Montevideo for one No. 8A petrol-driven light inspection rail trolley.

Road Vehicle Orders

John I. Thornycroft & Co. Ltd. has received an order from the Great Western Railway for 34 two-ton road vehicles. This is the thirty-eighth repeat order received from the Great Western Railway for these vehicles. John I. Thornycroft & Co. Ltd. has also received orders for a number of standard 2-ton chassis from the L.N.E.R. and from Carter Paterson & Co. Ltd.

Craven Brothers (Manchester) Limited has received orders from the Buenos Ayres Great Southern Railway for two motor-driven portable crank pin returning machines and one electrically-driven heavy-duty improved locomotive wheel lathe.

Wagons for India

The Metropolitan-Cammell Carriage & Wagon Co. Ltd. has received an order from H.E.H. the Nizam's State Railway Board for 92 5-ft. 6-in. gauge I.R.S. standard type O four-wheeled open wagons, to be supplied to the inspection of Sir Douglas Fox & Partners.

Walker Brothers (Wigan) Limited has received a repeat order from the County Donegal Railways Joint Committee for a 74-b.h.p. Gardner-engined diesel power unit and driving bogie for incorporation in a double-bogie

41-seater railcar similar to the two supplied to this railway by Walker Brothers (Wigan) Limited in 1934 and described and illustrated in our *Diesel Railway Traction Supplement* of June 15, 1934.

Hurst Nelson & Co. Ltd. has received an order from the Buenos Ayres Great Southern Railway for ironwork required for the construction abroad of 100 cattle wagons.

Finnish Rail Orders for 1936

The Finnish State Railways Administration, states Reuters, has allotted orders for rails for 1936, the total quantity being 13,500 tons, of which 6,000 tons will be bought from France, 3,800 tons from England and 3,200 tons from Belgium. The total value of the orders will be 23,700,000 Finnish marks (about £105,000 at the present exchange). Shipment will be made in April and May. The purchases are made on an f.o.b. basis so that Finnish ships can be employed. This year's purchases of rails amounted to 15,685 tons, costing 28,600,000 Finnish marks (about £126,000).

The Glasgow Railway Engineering Co. Ltd. has received an order for 16 pairs of wagon wheels and axles for the Bengal-North Western Railway to the inspection of Messrs. Rendel, Palmer & Tritton.

The Siamese State Railways Administration is shortly to inquire for tenders for the supply of approximately 6,950 metric tons of rails, fishplates and accessories.

Forthcoming Events

Nov. 7-16.—Commercial Motor Transport Exhibition, at Olympia, London.

Nov. 8 (Fri.).—Civil Engineering Society of Royal Technical College, George Street, Glasgow, 7.45 p.m. "Railway Construction in Western Africa," by Mr. A. C. Rankin.

Institute of Transport (Leeds), at Town Hall, 6.30 p.m. "Organising the Private Motorist," by Mr. E. H. Fryer.

Institute of Transport (Newcastle), at Royal Station Hotel, 7.30 p.m. "Air Ports," by Capt. J. D. Irving.

Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, 7 p.m. Informal Meeting.

Railway Club, at Royal Scottish Corporation Hall, Fetter Lane, London, E.C.4, 7.30 p.m. "Continental Railways," by Mr. W. A. Willox.

Nov. 9 (Sat.).—Railway Convalescent Homes, at Wharfedale Rooms, Hotel Great Central, Marylebone Road, London, N.W.1, 6.15 for 6.45 p.m. Family Dinner.

Nov. 11 (Mon.).—G.W.R. (Birmingham) Lecture and Debating Society, at Great Western Hotel, Snow Hill Station, 6.30 p.m. "Automatic Train Control," by Mr. A. W. Woodbridge.

Institute of Transport (London), at Inst. of Electrical Engineers, Savoy Place, W.C.2, 5.30 p.m. Annual General Meeting. "The Application of the Diesel Engine to Traction on Passenger Lines and in Shunting Yards," by Mr. C. E. Fairburn.

Permanent Way Institution (London), at Staff Dining Room, Waterloo Station, Southern Railway, 7 p.m. "Recent Improvements to the South Wales Docks, G.W.R.," by Mr. V. R. Illingworth.

Stephenson Locomotive Society (London), at Dining Club Room, King's Cross Station, L.N.E.R., 6.30 p.m. "Ornament, Decoration and the Aesthetic in the Design of Locomotives," by Mr. A. G. Williamson.

Nov. 12 (Tues.).—Institute of Transport (Birmingham), at Queen's Hotel, 6 p.m. "Railway Services to Travellers and Traders," by Mr. Ashton Davies, O.B.E.

Institution of Civil Engineers, Great George Street, London, S.W.1, 6 p.m. "The Behaviour of Reinforced Concrete Piles during Driving," by Messrs. W. H. Glenville, G. Grime and W. W. Davies.

Permanent-Way Institution (Sheffield), at Royal Victoria Hotel, 7 p.m. "Welding," by Mr. E. S. Semper.

Permanent-Way Institution (York), at Railway Inst., Queen Street, 6.30 p.m. "Measured Shovel Packing," by Mr. G. F. Kent.

Nov. 13 (Wed.).—British Science Guild, at Goldsmiths' Hall, Foster Lane, London, E.C.2, 4.30 p.m. "The Calculus of Plenty," by Sir Josiah Stamp.

Institution of Railway Signal Engineers, at Inst. of Electrical Engineers, Savoy Place, London, W.C.2, 6 p.m. Ordinary Meeting.

L.N.E.R. (Darlington) Lecture and Debating Society, at North Road Inst., 7.30 p.m. Joint Meeting with Middlesbrough Society. Debate: "That the Present Organisation between the Operating and Commercial Departments at Goods Stations is the Best." *Affirmative*: Darlington Society. *Negative*: Middlesbrough Society.

Nov. 14 (Thurs.).—G.W.R. (London) Lecture and Debating Society in General Meeting Room, Paddington Station, 5.45 p.m. "Transport Observations on a World Tour," by Mr. A. W. Arthurlton.

Nov. 15 (Fri.).—Institute of Transport (Leeds Graduate), at Church Inst., Albion Place, 7 p.m. "The Purchase and Control of Stores," by Mr. H. J. Martin.

Railway Students Association (Edinburgh), at Gould Hall, St. Andrew Square, 7.30 p.m. "King's Highway," by Mr. O. H. Corbie.

LEGAL AND OFFICIAL NOTICES

In the Court of the Railway Rates Tribunal

Road and Rail Traffic Act, 1933.
Agreed Charges.

NOTICE IS HEREBY GIVEN that Applications for the approval of Agreed Charges under the provisions of Section 37 of the Road and Rail Traffic Act, 1933, short particulars of which are set out in the Schedule hereto, have been lodged with the Railway Rates Tribunal.

The said Applications may be inspected at the Office of the Tribunal, Bush House, Aldwych, London, W.C.2, at any time during office hours and at the following places:—
LONDON: Railway Clearing House, 123, Seymour Street, N.W.1.

BIRMINGHAM: District Goods Manager's Office, Snow Hill, Great Western Railway.

CARDIFF: Divisional Superintendent's Office, Great Western Railway.

EXETER: Western Divisional Superintendent's Office, Southern Railway.

LEEDS: District Goods Manager's Office, Wellington Street, London & North Eastern Railway.

LEICESTER: District Goods and Passenger Manager's Office, London Midland & Scottish Railway.

MANCHESTER: District Goods Manager's Office, Hunt's Bank, London Midland & Scottish Railway.

SOUTHAMPTON: Southern Divisional Superintendent's Office, Southampton West, Southern Railway.

YORK: Goods Manager's Office, London & North Eastern Railway.

ABERDEEN: District Goods and Passenger Manager's Office, London Midland & Scottish Railway.

EDINBURGH: District Goods and Passenger Manager's Office, Waverley Station, London & North Eastern Railway.

GLASGOW: Commercial Manager's Office, Central Station, London Midland & Scottish Railway.

A copy of each Application lodged with the Tribunal can be obtained from Mr. G. Cole Deacon, Secretary, Rates and Charges Committee, 35, Parliament Street, Westminster, London, S.W.1, price 1s., post free.

Notices of objection by any parties entitled to object to the approval of any of the said Agreed Charges must state concisely the

grounds of objection and must be filed at the office of the Registrar, Bush House, Aldwych, London, W.C.2, on or before the 29th day of November, 1935, and a copy thereof on or before the same day served on or sent by registered post to Mr. G. Cole Deacon, at the above address. A separate Notice must be filed and served in respect of each Application.

Each Notice filed must be on foolscap size paper and must be stamped with an adhesive fee stamp for 2s. 6d. (which can be purchased at the office of the Tribunal only). If sent by post for filing, each Notice must be accompanied by a Postal Order for 2s. 6d. payable to the Registrar, when a stamp will be affixed at the office. A Notice by a Representative Body of Traders must contain a statement of the facts upon which such Body claims to represent a substantial number of traders interested in, or likely to be affected by the decision on, the application.

Four additional copies of each Notice must be lodged with the original at the office of the Registrar.

T. J. D. ATKINSON,
Registrar.

4th November, 1935.

Number of Application and Date of Lodgment	Parties to Agreement	Nature of Agreed Charge
1935. No. 323— Nov. 1, 1935	J. E. FOSTER, 47 and 49, Norwich Road, Ipswich, Suffolk, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos. and L.P.T.B.	Per Live Pig. Live Pigs consigned to Registered Bacon Curers or their Agents.
	<i>This Application, by leave granted under Rule 4, relates also to Agreed Charges with other Registered Bacon Curers in Great Britain as specified therein.</i>	
1935. No. 324— Nov. 1, 1935	BRIGGS & CO., 16 to 28, York Street, Leicester, and the L. & N.E. and L.M. & S. Railway Cos.	Per ton. Boots and Shoes, Hosiery, Woollen Goods, Clothing, Toys, Polishes, Stains and Dressings, Brushes and Accessories, and Shop Fittings.
1935. No. 325— Nov. 1, 1935	GEORGE DOBIE & SON LTD., Four Square Works, Paisley, and the L.M. & S. Railway Co.	Per ton. Cigarettes, Manufactured Tobacco and Advertising Matter.
1935. No. 326— Nov. 1, 1935	GRANT & ARMSTRONG LIMITED, Bath Lane, Newcastle-on-Tyne, 4, and the L. & N.E. Railway Co.	Per ton. Paper and School Requisites.
1935. No. 327— Nov. 1, 1935	J. A. & S. PORTALS LIMITED, Stowford Mills, Ivybridge, and the G.W. Railway Co.	Per ton. Paper in Class II of the General Classification of Merchandise.
1935. No. 328— Nov. 1, 1935	SCOTT & BOWNE LIMITED, 10 and 11, Stonecutter Street, London, E.C.4, and the G.W. Railway Co.	Per ton. Emulsion; Cod Liver Oil; Cod Liver Oil and Malt; Druggists' Sundries; Cosmetics; Advertising Matter.
1935. No. 329— Nov. 1, 1935	J. A. SHARWOOD & CO. LTD., Offley Works, Offley Road, London, S.W.9, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per ton. Preserves, Cherries in Brine; Empties returned to Suppliers.
1935. No. 330— Nov. 1, 1935	H. C. WEBB & CO. LTD., Tame Road, Witton, Birmingham, and the G.W. and L.M. & S. Railway Cos.	Per ton. Machines, Lawn-mowing, Washing and Wringing; Empties returned to Suppliers.
1935. No. 331— Nov. 1, 1935	GEORGE DOBIE & SON LTD., Four Square Works, Paisley, and the L.M. & S. Railway Co.	Per package. Cigarettes, Cigars, Snuff, Tobacco and Advertising Matter.
1935. No. 332— Nov. 1, 1935	MACFISHERIES LIMITED, 27, Pudding Lane, London, E.C.3, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos. <i>Applicable also to traffic consigned by one Associated or Subsidiary Company.</i>	Per package. Fish.
1935. No. 333— Nov. 1, 1935	MACFISHERIES LIMITED, 27, Pudding Lane, London, E.C.3, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos. <i>Applicable also to traffic consigned by one Associated or Subsidiary Company.</i>	Per package. Game and Poultry.
1935. No. 334— Nov. 1, 1935	MALCOLM (LONDON) LIMITED, Southall, Middlesex, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per ton. Bakers' Filling Cream.
1935. No. 335— Nov. 1, 1935	R. ROWLEY & CO. LTD., Queen Street, Leicester, and the L. & N.E. and L.M. & S. Railway Cos.	Per package. Hosiery.
1935. No. 336— Nov. 1, 1935	THE CO-OPERATIVE WHOLESALE SOCIETY LIMITED, 1, Balloon Street, Manchester, and the Midland and Great Northern Joint Committee and the L. & N.E. Railway Co.	Per ton. Preserves; Cheese in cartons; Potato Crisps; Cooked Meat; Sausages; Meat Pies; Advertising Matter.
1935. No. 337— Nov. 1, 1935	THE EMU WINE CO. LTD., Emu House, St. Leonards Street, Bromley-by-Bow, London, E.3, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per ton. Wine in casks and cases; Capsules and Advertising Matter.
1935. No. 338— Nov. 1, 1935	ENERGEN FOODS CO. LTD., Bridge Road, Willesden, London, N.W.10, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per ton. Grocery Articles, such as in Lists G and H of the General Classification of Merchandise; Bread; Empties returned to Suppliers.
1935. No. 339— Nov. 1, 1935	L. & C. MOSS, Canal Street, Manchester, 4, and the Cheshire Lines Committee, G.W., L. & N.E. and L.M. & S. Railway Cos.	Per consignment. Clothing, Drapery and General Stores Wares; Empties returned to Suppliers.
1935. No. 340— Nov. 1, 1935	THE NATIONAL CORRUGATED PAPER CO. LTD., Ayres Road, Old Trafford, Manchester, and the Cheshire Lines Committee, G.W., L. & N.E., and L.M. & S. Railway Cos.	Per ton. Corrugated Paper and Gummed Paper.
1935. No. 341— Nov. 1, 1935	RECKITT & SONS LTD., Hull, and the L. & N.E. and L.M. & S. Railway Cos.	Per ton. Polishes; Stains; Dressings; Grocery articles, such as Blue Starch and Black Lead; Bath Salts; Cleansing Powders; Disinfectants; Dry Colours; Dyes; Insecticides; Enamels; Hardware; "Sample"; Toilet Paper and Advertising Matter.
1935. No. 342— Nov. 1, 1935	WIGGINS, TEAPE & ALEX PIRIE (SALES) LIMITED, Aldgate House, 46-58, Mansell Street, London, E.1, and the G.W. Railway Co.	Per ton. Paper in Class II of the General Classification of Merchandise.
1935. No. 343— Nov. 1, 1935	BRITISH VACUUM CLEANER AND ENGINEERING CO. LTD., London, S.W.6, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Vacuum Cleaners and parts; and Advertising Matter.
1935. No. 344— Nov. 1, 1935	J. HENRY BROOKE LIMITED, 19-25, Nile Street, London, N.1, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Clothing.
1935. No. 345— Nov. 1, 1935	ALFRED COHEN & SONS, Arcyle Works, 241-247, Bow Road, London, E.3, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Clothing.
1935. No. 346— Nov. 1, 1935	FARMA CREAM PRODUCT CO. LTD., 23-25, Prince of Wales Crescent, London, N.W.1, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Butter, Farma Cream, Fresh Cream, Milk Powder and Condensed Milk.
1935. No. 347— Nov. 1, 1935	FREEMANS, 103-109, Lavender Hill, London, S.W.11, and the Southern Railway Co.	Per package. Clothing, Drapery and General Stores Wares.
1935. No. 348— Nov. 1, 1935	GRAINGER & SMITH LIMITED, Dudley, and the Cheshire Lines Committee, G.W., L. & N.E., L.M. & S. and Southern Railway Cos. <i>Applicable also to traffic consigned by four Associated or Subsidiary Companies.</i>	Per package. Clothing, Woollens, Linings, Drapery and Outfitting.

Legal and Official Notices—continued

Number of Application and Date of Lodgment	Parties to Agreement	Nature of Agreed Charge
1935. No. 349— Nov. 1, 1935	HARRODS LIMITED, Knightsbridge, London, S.W.1, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Clothing, Drapery and General Stores Wares.
1935. No. 350— Nov. 1, 1935	HOVIS LIMITED, Macclesfield, and the L. & N.E. and L.M. & S. Railway Cos.	Per package. Baskets, Baking Tins, Paper Bags and Advertising Matter.
1935. No. 351— Nov. 1, 1935	KEARLEY & TONGE LIMITED, Mitre Square, London, E.C.3, and the G.W. Railway Co.	Per package. Cooked Meats, Brawn and Sausages.
1935. No. 352— Nov. 1, 1935	THE NOTTS HOSIERY CO. LTD., 44 and 44A, Gutter Lane, Cheapside, London, E.C.2, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Hosiery.
1935. No. 353— Nov. 1, 1935	PALETHORPES LIMITED, Tipton, and the G.W. and L.M. & S. Railway Cos.	Per ton. Sausages, Tongues, Brawn, Boned Hams, Pressed Meat, Meat Pies, Black Puddings and Advertising Matter.
1935. No. 354— Nov. 1, 1935	TRIUMPH CO. LTD., Coventry, and the L.M. & S. Railway Co.	Per Motor Bicycle. Motor Bicycles (complete).
1935. No. 355— Nov. 1, 1935	EDWARD WEBB & SONS (STOURBRIDGE) LTD., Wordsley, Stourbridge, Worcs., and the G.W. Railway Co.	Per package. Bulbs, Plants, Seeds and Horticultural Sundries.
1935. No. 356— Nov. 1, 1935	WOLSEY LIMITED, King Street, Leicester, and the L. & N.E. and L.M. & S. Railway Cos.	Per package. Hosiery and Advertising Matter.
1935. No. 357— Nov. 1, 1935	WM. COLLINS SONS & CO. LTD., 144, Cathedral Street, Glasgow, C.4, and the L. & N.E. and L.M. & S. Railway Cos.	Per package. Books and Stationery.
1935. No. 358— Nov. 1, 1935	WILLIAM HOLINS & CO. LTD., Viyella House, Nottingham, and the L. & N.E. and L.M. & S. Railway Cos.	Per package. Garments, Hosiery, Knitting Yarn and Advertising Matter.
1935. No. 359— Nov. 1, 1935	M. C. GROUTHER LIMITED, Corniton Road, Stirling, and the L. & N.E. and L.M. & S. Railway Cos.	Per package. Bacon, Margarine, Meat and Sausages.
1935. No. 360— Nov. 1, 1935	L. & R. MORLEY LIMITED, 18, Wood Street, London, E.C.2, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Gloves, Hosiery and Textiles.
1935. No. 361— Nov. 1, 1935	J. PICK & SONS LTD., Leicester, and the L. & N.E. and L.M. & S. Railway Cos.	Per package. Knitted Outwear.
1935. No. 362— Nov. 1, 1935	I. E. TRENT & CO. LTD., 10, Oat Lane, Wood Street, London, E.C.2, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per package. Textiles.
1935. No. 363— Nov. 1, 1935	UNITED DAIRIES LIMITED, 31, St. Petersburg Place, London, W.C.2, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos., and the Somerset and Dorset Joint Committee.	Per ton. Butter, Cheese, Cream, Eggs, Poultry, Preserves, Honey, Lard, Margarine, Sauces, Condensed Milk, Advertising Matter and Stationery.
<i>Applicable also to traffic consigned by six Associated or Subsidiary Companies.</i>		
1935. No. 364— Nov. 1, 1935	T. WALL & SONS LTD., The Friary, Acton, London, W.3, and the G.W., L. & N.E., L.M. & S. and Southern Railway Cos.	Per ton. Sausages, Cooked Meat, Meat Pies, Lard, Potted Meat and Pastes.
1935. No. 365— Nov. 1, 1935	R. S. NORRISH & SONS LTD., Sampford Peverell, and the G.W. Railway Co.	Per ton. Butter and Cream.
1935. No. 366— Nov. 1, 1935	SAXONE SHOE CO. LTD., Kilmarnock, and the L.M. & S. Railway Co.	Per package. Boots, Shoes, Laces and Hosiery.

Bengal-Nagpur Railway Company Limited

THE Directors are prepared to receive Tenders for:—

502 STEEL TYRES.

Specification and Form of Tender can be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after Wednesday, 6th November, 1935.

A fee of 10s. will be charged for each copy of the Specification, which is NOT returnable.

Tenders must be submitted not later than Noon on Tuesday, 19th November, 1935.

The Directors do not bind themselves to accept the lowest or any Tender, and reserve to themselves the right of reducing or dividing the order.

By Order of the Board,
T. R. WYNNE,
Managing Director.

OFFICIAL ADVERTISEMENTS.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—The Railway Gazette, 33, Tothill Street, Westminster, London, S.W.1.

Universal Directory of Railway Officials and Railway Year Book

41st Annual Edition, 1935-36

Price 20/- net.

This unique publication gives the names of all the principal railway officers throughout the world, together with essential particulars of the systems with which they are connected. Much general and statistical information about railways is also concisely presented.

THE DIRECTORY PUBLISHING CO. LTD.,
33, Tothill Street, London, S.W.1.

Indian Railway Publicity Lecture in London

At the invitation of the High Commissioner for India, about 100 guests assembled at India House for afternoon tea last Friday, and subsequently heard a brief lantern lecture by Mr. V. P. Bhandarkar, Manager of the Indian Railways Publicity Bureau in London.

The lecturer skilfully referred in a few words to the early history of railways, beginning with the opening of the first line 21 miles in length, from Bombay to Thana in 1848, and then proceeded to outline the recent financial position of Indian railways. Comprising a mileage of 43,000, Indian lines had had roughly half the capital expended upon them that the four British groups had involved, and they were realising about half the revenue, he said, while passenger-mile and ton-mile charges were approximately half those on British railways.

Turning to publicity, he referred to the bureaux in London and New York,

which for the past eight years had provided itineraries and information of all kinds for would-be tourists, and also rates and other information for merchantile firms. They undertook no booking, but the London bureau, which catered for all Europe, had helped 1,300 tourists to see India last year. This tourist traffic from overseas was, the speaker said, valued at about Rs. 7 lakhs (£52,500) a year. The nature of the inquiries received was, he remarked, so varied that replies to them were quite encyclopædic.

Among other forms of publicity mentioned, were exhibition trains and the loan of lantern slides for lectures, and Mr. Bhandarkar then discoursed upon the ancient monuments of India, illustrating a large number of them by excellent coloured lantern slides. The first slide shown, however, illustrated one of the earliest locomotives on the East Indian Railway, and was followed by one depicting a Pacific type XB

engine of the present day. The Gokteik viaduct in the Northern Shan States of Burma was also among the few railway subjects illustrated. The whole lecture, which was over in under half-an-hour, was of considerable interest and was much appreciated by the audience.

THE RAILWAY CLUB—A large gathering of members of the Railway Club heard a paper by Mr. H. W. Bardsley, at the monthly meeting on October 11. Taking for his subject "Some Famous British Railway Accidents," Mr. Bardsley expressed his surprise at the paucity of literature dealing with accidents, but read some amusing extracts from early railway books describing mishaps which befell passengers in bygone days. Dealing with the early days of the Board of Trade, Mr. Bardsley referred to the trouble experienced in enforcing their regulations, the non-observance thereof being a frequent source of accidents.

Railway Share Market

The stock and share markets have been strong, encouraged by Stock Exchange members' views that the National Government will again be returned and be followed by a spell of further trade recovery and active markets. The Home railway market was agreeably surprised by the details of the plans being made by the railways in connection with the Government's £30,000,000 five-year scheme of railway development.

The official statement of the railways that the completion of electrification and other works outlined will place them in a "much more favourable position" for accommodating the "increasing public requirements for all classes of traffic" has been interpreted in the Stock Exchange as a very encouraging reference to the traffic outlook for the companies. It is anticipated in the market that the

necessary money will be raised by a Government-guaranteed long-term loan carrying only 3 per cent. p.a. interest. The chief activity following the announcement was in Southern preferred and deferred ordinary stocks, the former going back to over 80 after their recent spell of weakness. Dealings in London & North Eastern issues were mostly in the preference stocks of that company, the first preference stock jumping two points. Great Western ordinary were bid for at a higher level and there was a general advance in London Midland & Scottish stocks. The publication on Wednesday of a series of good increases in gross traffic receipts tended to stimulate interest still further in the Home railway market, and there was a period of greater activity than for some time past, despite the absence of a large number of members

of the Stock Exchange on electioneering business.

In foreign railway stocks there was some evidence of renewed confidence in the ultimate recovery of the Argentine railways. Whilst it is difficult to foresee shadow any immediate recovery, there is an increasing tendency for a number of investors to buy the ordinary stocks and lock them away against a recovery of the dividend-paying position two to five years hence. The capital appreciation would probably repay such locking-up, although the operation is only suitable for investors taking the long view and prepared to forego income return on capital. Cordoba Central stocks were not much affected by absence of favourable development in the reported negotiations with the Government for acquisition of the line.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1934-35	Week Ending	Traffics for Week		No. of Weeks	Aggregate Traffics to Date			Shares or Stock	Prices						
			Total this year	Inc. or Dec. compared with 1934		Totals		Increase or Decrease		Highest 1934	Lowest 1934	Nov. 6, 1935	Yield % (See Note)			
						This Year	Last Year									
South & Central America.	Antofagasta (Chili) & Bolivia	830	3.11.35	£ 14,400	—	£ 4,270	44	545,040	637,140	—	92,100	Ord. Stk.	265 ⁴	19	20	Nil
	Argentine North Eastern	753	2.11.35	8,278	+	1,766	18	147,968	139,255	+	8,713	—	11	67 ⁸	51 ²	Nil
	Argentine Transandina	—	—	—	—	—	—	—	—	—	—	A. Deb.	52	45	48	85 ²
	Bolivar	174	Oct., 1935	5,300	—	300	43	60,600	59,950	—	650	6 p.c. Deb.	10	61 ²	10	Nil
	Brazil	—	—	—	—	—	—	—	—	—	—	Bonds.	135 ⁴	107 ¹⁰	11 ²	45 ¹⁰
	Buenos Ayres & Pacific	2,806	2.11.35	79,318	+	18,884	18	1,324,601	1,232,229	+	92,372	Ord. Stk.	161 ²	81 ²	7	Nil
	Buenos Ayres Central	190	19.10.35	\$103,000	—	\$9,100	16	\$2,020,400	\$2,086,560	—	\$66,100	Ord. Stk.	23	10	16	Nil
	Buenos Ayres Gt. Southern	5,085	2.11.35	117,698	+	451	18	2,148,903	2,174,571	—	25,668	Ord. Stk.	35	22	17	Nil
	Buenos Ayres Western	1,930	2.11.35	36,310	—	2,377	18	700,562	731,492	—	30,930	—	271 ²	181 ²	14	Nil
	Central Argentine	3,700	2.11.35	112,347	+	16,371	18	2,120,731	2,164,192	—	43,461	—	23	131 ²	10	Nil
	Do.	—	—	—	—	—	—	—	—	—	—	Dfd.	14	7	5	Nil
	Cent. Uruguay of M. Video	273	2.11.35	12,090	—	10,071	18	155,441	324,206	—	168,765	Ord. Stk.	151 ²	3	4	Nil
	Do. Eastern Extn.	311	2.11.35	1,847	—	525	18	24,444	27,785	—	3,341	—	—	—	—	—
	Do. Northern Extn.	185	2.11.35	1,464	—	382	18	19,009	15,514	+	3,495	—	—	—	—	—
	Do. Western Extn.	211	2.11.35	801	—	181	18	13,438	12,799	+	639	—	—	—	—	—
	Cordoba Central	1,218	2.11.35	26,910	+	60	18	559,130	552,610	+	6,520	Ord. Inc.	6	3	2	Nil
	Costa Rica	188	Aug., 1935	16,672	+	1,698	9	30,402	33,155	—	2,753	Stk.	305 ⁴	231 ²	34	57 ⁸
	Dorada	70	Sept., 1935	12,200	+	3,000	39	105,500	90,700	+	14,800	1 Mt. Db.	103	95	102 ¹²	57 ⁸
	Entre Rios	810	2.11.35	10,834	—	225	18	211,943	203,380	+	8,563	Ord. Stk.	211 ²	12	71 ²	Nil
	Great Western of Brazil	1,082	2.11.35	9,600	—	4,200	44	330,300	364,300	—	34,000	Ord. Sh.	7 ⁸	5 ⁸	8	Nil
	International of C. Amer.	794	Sept., 1935	\$284,242	+	\$4,429	39	\$3,549,252	\$3,639,904	—	\$90,652	—	—	—	—	—
	Intercontinental of Mexico	225 ⁴	Oct., 1935	2,900	—	300	43	37,885	36,065	+	1,820	1st Pref.	1/—	1/—	1 ²	Nil
	La Guayra & Caracas	1,918	2.11.35	20,774	—	3,223	44	785,175	981,640	—	196,465	Ord. Stk.	145 ⁸	7	3	Nil
	Leopoldina	483	31.10.35	\$331,000	—	\$54,300	17	\$4,271,300	\$3,926,500	+	\$344,800	—	314	11 ²	1 ²	Nil
	Mexican	319	Oct., 1935	6,499	—	6,439	17	22,345	38,789	—	16,444	—	11 ²	1 ²	11 ²	Nil
	Midland of Uruguay	401	31.10.35	9,107	+	3,658	43	126,964	110,252	+	16,712	Ord. Sh.	328 ²	51/—	67 ²	74 ²
Nitrate	274	26.10.35	\$1,795,000	—	\$931,000	17	\$32,675,000	\$16,364,000	+	\$16,311,000	Pr. Li. Stk.	84	67	77 ²	Nil	
Paraguay Central	1,059	Oct., 1935	81,893	+	17,486	17	299,665	250,845	+	48,820	Pref.	141 ²	8	101 ²	Nil	
Peruvian Corporation	100	26.10.35	£14,700	—	£3,160	17	£204,221	£161,563	+	£42,658	Pr. Li. Db.	75	70	65	71 ⁴	
Salvador	153 ²	27.10.35	24,150	—	525	43	1,095,068	1,166,636	—	71,588	Ord. Stk.	86	67	40	61 ⁶	
Taita	164	Sept., 1935	4,305	+	2,470	13	9,250	6,913	+	2,337	Ord. Sh.	21 ⁸	17 ¹⁶	15 ⁸	71 ⁴	
United of Havana	1,353	2.11.35	12,884	—	1,565	18	290,714	299,348	—	8,634	Ord. Stk.	6	2	2	Nil	
Uruguay Northern	73	Oct., 1935	765	—	367	17	2,527	4,444	—	1,917	Deb. Stk.	61 ⁴	3	41 ²	Nil	
Canada.	Canadian National	23,697	31.10.35	1,160,887	+	35,504	43	28,591,217	27,553,200	+	1,038,017	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—	—	4 p.c.	Perp. Dbs.	781 ⁴	511 ²	631 ²	681 ⁶
	Grand Trunk	—	—	—	—	—	—	—	—	—	—	4 p.c. Gar.	1041 ²	971 ⁴	981 ²	411 ⁶
India.	Canadian Pacific	17,224	31.10.35	864,800	—	18,400	43	21,247,800	20,730,600	+	517,200	Ord. Stk.	185 ¹⁶	111 ¹⁶	91 ²	Nil
	Assam Bengal	1,329	10.10.35	35,527	—	4,940	27	628,383	738,115	—	109,732	Ord. Stk.	881 ²	72	791 ²	35 ⁴
	Barsi Light	202	10.10.35	2,265	—	360	27	73,245	77,707	—	4,462	Ord. Sh.	1041 ²	983 ⁴	781 ²	57 ⁴
	Bengal & North Western	2,114	10.10.35	57,753	—	18	2	57,753	57,735	—	18	Ord. Stk.	2971 ²	262	2951 ²	61 ⁶
	Bengal Doonars & Extension	161	10.10.35	4,116	—	1,498	27	68,922	79,018	—	10,096	—	1251 ⁴	124	1221 ²	511 ¹⁶
	Bengal-Nagpur	3,268	30.9.35	167,700	+	22,362	26	3,138,999	2,895,489	+	243,510	—	1051 ²	96	1021 ²	37 ⁸
	Bombay, Baroda & C. India	3,072	31.10.35	238,290	—	750	30	4,511,625	4,519,350	—	7,725	—	115	1081 ²	1121 ²	581 ⁶
	Madras & South'n Mahratta	3,230	10.10.35	132,075	—	18,785	27	2,810,286	3,109,652	—	299,366	—	131	1225 ⁴	1201 ²	77 ⁸
	Rohilkund & Kumaon	546	10.10.35	9,887	—	1,023	2	9,887	10,910	—	1,023	—	263	250	2921 ²	51 ²
	South India	2,526	10.10.35	114,611	—	15,540	27	2,148,961	2,262,265	—	113,304	—	119	115	1091 ²	7
Various.	Beira-Umtali	204	Aug., 1935	69,967	+	1,369	48	710,272	587,777	+	122,495	—	—	—	—	—
	Bilbao River & Cantabrian	15	Oct., 1935	1,695	—	1,171	43	15,053	16,719	—	1,666	—	—	—	—	—
	Egyptian Delta	622	20.10.35	10,117	—	1,889	29	121,536	121,099	—	437	Pref. Sh.	215 ¹⁶	13 ⁴	15 ⁴	511 ¹⁰
	Great Southern of Spain	104	26.10.35	2,566	—	483	43	76,358	85,855	—	19,497	Inc. Deb.	4	31 ²	31 ²	Nil
	Kenya & Uganda	1,625	Sept., 1935	166,857	+	17,443	39	1,808,941	1,694,916	+	114,025	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	—	—	B. Deb.	50	33	37	971 ⁶
	Mashonaland	913	Aug., 1935	117,688	—	2,319	48	1,277,362	1,076,622	+	200,740	1 Mg. Db.	101	913 ⁴	1011 ²	4181 ²
	Midland of W. Australia	277	Sept., 1935	14,150	—	512	13	37,202	39,590	—	2,388	Inc. Deb.	100	93	941 ²	581 ⁶
	Nigerian	1,905	14.9.35	23,830	—	5,517	24	555,750	610,650	—	54,900	—	—	—	—	—
	Rhodesia	1,538	Aug., 1935	203,069	—	5,376	48	2,125,732	1,808,818	+	316,914	4 p.c. Db.	1047 ⁸	971 ²	1021 ²	37 ⁸
	South African	13,225	12.10.35	567,210	—	10,286	28	15,419,596	14,044,689	+	1,374,907	—	—	—	—	—
	Victorian	4,728	July, 1935	713,389	—	20,391	4	713,389	692,998	—	20,391	—	—	—	—	—
	Zafra & Huelva	112	Sept., 1935	12,860	—	1,697	39	101,435	102,566	—	1,131	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16

† Receipts are calculated @ 1s. 6d. to the rupee. \$ ex dividend. Salvador and Paraguay Central receipts are in currency.

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rates of exchange and not on the par value